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Quality Products, Midwest Values

HM Cragg Provides Full Range Of Power Products, Integrated Services

HM CRAGG'S ROOTS ARE BURIED deep in the IT industry, and they've been there since 1968 when the company began. The company was incorporated in 1969, and its focus has always been on the needs of its customers and providing the right combination of solutions to fit those needs. To make sure the company always has the right frame of mind and makes every decision for the customer, HM Cragg follows five core values: honesty, trust, integrity, ethics, and knowledge.

The company has been employee-owned since 1998, and every employee in the company maintains the title of "owner," holding all employees accountable to its values. And those values lead to a high level of customer service, evident from the first time you meet an HM Cragg representative to the moment your product is delivered and beyond.

"If you look at the company and the company's values, we're very customer-centric and even our mission statement talks about the servant approach to business," says Ron Piersky, vice president of business development at HM Cragg. "Our core values are extremely important to the organization and then take those core values and extend them to our customers is paramount to our organization."

Customer-Centric Custom Products

HM Cragg focuses on the customer simply by listening and being flexible. The company starts by sitting down with customers and determining what they need in a solution. From there, the employees at HM Cragg get together and come up with a solution to fulfill the company's needs.

"It can be as basic as taking a network card and putting it in a UPS, or it can be this

HM Cragg Product & Service Offerings

HM Cragg is an employee-owned company that provides a range of products and services in addition to its new Advanced Technology Solutions. Here's a quick sample:

- AC and DC power solutions (UPSes, power distribution)
- Control and monitoring (UPS cards, environmental and power monitoring)
- Connectors and cables (C13 and C19 cord sets, ePDU cables)
- Cooling (air flow management, portable cooling)
- Racks and enclosures (standard racks, battery racks)
- Safety equipment (battery spill containment, safety signs)
- Services (installation, preventive maintenance, battery recycling and disposal)

very specific, customer-defined solution," Piersky says. "We have taken a product, modified and programmed the power distribution unit to do sequential startups and shutdowns to meet customer expectations."

Some of HM Cragg's clients request so many modifications to a COTS (commercial off-the-shelf) product that it ends up being something almost indistinguishable from the original. In fact, that's exactly what happened with one of its clients in the military sector and the modified Eaton products the customer requested. But because HM Cragg is flexible, it will make the necessary changes and even "deliver the product with the customer's name

on it," Piersky says. In the end, the company's approach comes down to looking past the product itself and instead making sure the company reaches its ultimate end goal.

New Services & Strategies

HM Cragg's newest endeavor is its Advanced Technology Solutions. These services were designed to provide customers an end-to-end support system during and after the product purchasing stage and during the building and design stages. Advanced Technology Solutions include Web card installation and configuration, rack component building and staging, large rollout warehousing and

deployment, turnkey data center installations, zero downtime strategies, business development support, and much more.

Piersky says HM Cragg sees the Advanced Technology Solutions it provides as "deliverable solutions that are defined by the customer." The company modifies and configures products to meet unique design specifications and delivers them on the customer's timetable. And regardless of what industry your company falls into, you can be sure you'll receive the same level of customer service and the same attention to detail from start to finish.

"We've done large projects for a Fortune 500 soft drink manufacturer, the military, and some hospital projects," says Piersky. "They come in and give us a rollout schedule where they say, 'you buy it, you warehouse it, and you deliver it when we tell you.' It's really that total procurement and logistics management piece where we manage the rollout of these projects."

With its Advanced Technology Solutions and all of its other offerings, HM Cragg works hard to create a partnership that will last for years. The same defense contractor that required massive modifications to its Eaton products also requested that HM Cragg handle battery retrieval, replacement, and recycling for those solutions, Piersky says. This means that HM Cragg will be working with this client for 12 to 13 years through the entire lifecycles of the purchased solutions. It's a high level of customer service designed to give customers peace of mind knowing that now and in the foreseeable future, their products will be maintained and fully supported by HM Cragg. ◼

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Contact Name: _____

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City: _____ State: _____ Postal Code: _____

Country: _____

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1. What is the size of your company (how many employees)?
- ❏ Less than 10
- ❏ 10 to 99
- ❏ 100 to 199
- ❏ 200 to 499
- ❏ 500 to 999
- ❏ 1,000+

2. How often do you purchase computer hardware/software?
- ❏ Weekly
- ❏ Bi-weekly
- ❏ Monthly
- ❏ Quarterly
- ❏ Annually
- ❏ No Involvement

3. What is your annual computer hardware/software purchasing budget?
- ❏ $0 to $9,999
- ❏ $10,000 to $24,999
- ❏ $25,000 to $49,999
- ❏ $50,000 to $99,999
- ❏ $100,000 to $249,999
- ❏ $250,000 to $499,999
- ❏ $500,000 to $999,000
- ❏ $1,000,000+

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News

Report Indicates Slight Reduction In Data Center Occupancy

According to Jim Kerrigan and David Horowitz, principals with Avison Young's Data Center Group, occupancy rates for wholesale data centers are now about 81%, marking a slight decline after occupancy had neared 90% at the end of 2009. Compared to May 2010, when there were three 6-megawatt facilities available offering 45,000 square feet of space, there are now eight, according to the Avison Young report. "The U.S. wholesale data center market remains well supplied in 2012 with more product available today than at any time in the market's short history," says the report.

Qualcomm Buys Power IC Chip-Maker Summit Microelectronics

San Diego-based Qualcomm has acquired Sunnyvale, Calif.,-based Summit Microelectronics, manufacturer of power integrated circuits. Qualcomm COO Steve Mollenkopf indicated that the acquisition will enhance Qualcomm's power management portfolio thanks to Summit's expertise in battery charging and related technology. All Summit Microelectronics employees are now part of Qualcomm's CDMA Technologies division, according to Qualcomm.

Mobile Broadband Subscriptions On The Rise

The number of subscriptions to mobile broadband services, or high-speed Internet services for smartphones and other mobile devices, is rapidly increasing, according to the new "Total Fixed and Mobile Subscribers Pivot" report from Infonetics. Mobile broadband subscriptions reached 846 million worldwide in 2011, amounting to a 50% rise over the previous year. Infonetics expects mobile broadband subscriptions to pass the 2.6 billion mark by 2016, mainly due to broad uptake in the developing world. The research company also forecasts that 4G LTE (Long Term Evolution) subscriptions will approach 450 million by 2016.

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 15 major companies in the technology market.

Company	Symbol	Year Ago	June 7 $	June 21 $	% change from previous issue	
AMD	AMD	$7.06	$5.76	$5.72	▼	0.69%
Apple	AAPL	$331.23	$571.72	$577.67	▲	1.04%
CA Technologies	CA	$22.27	$25.53	$26.01	▲	1.88%
Cisco Systems	CSCO	$15.47	$16.58	$16.92	▲	2.05%
Dell	DELL	$16.27	$12.13	$12	▼	1.07%
Facebook	FB	n/a	$26.31	$31.84	▲	21.02%
Google	GOOG	$480.22	$578.23	$577.51	▼	0.12%
HP	HPQ	$35.23	$22.06	$21.16	▼	4.08%
IBM	IBM	$166.12	$194.44	$193.39	▼	0.54%
Intel	INTC	$21.71	$25.94	$26.71	▲	2.97%
LinkedIn	LNKD	$70.32	$94.13	$102.19	▲	8.56%
Microsoft	MSFT	$24.63	$29.23	$30.14	▲	3.11%
Oracle	ORCL	$32.46	$27.18	$27.81	▲	2.32%
Red Hat Software	RHT	$45.27	$54.63	$53	▼	2.98%
Symantec	SYMC	$18.93	$14.47	$14.44	▼	0.21%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

Apple & Samsung Share 55% Of Smartphone Market

A new report from ABI Research shows that Apple and Samsung combined to capture 55% of the smartphone market worldwide in Q1 2012. In terms of sales, Samsung was the leader, followed by Apple. Sales for these top two manufacturers amounted to 90% of the profit in the smartphone market. The figures here show the total number of vendor shipments in Q1 2012 by manufacturer.

Samsung
43
million

Apple
35
million

Research
In Motion
11.1
million

Nokia
11.9
million

ZTE
4.9
million

Huawei
6.8
million

Sony
7
million
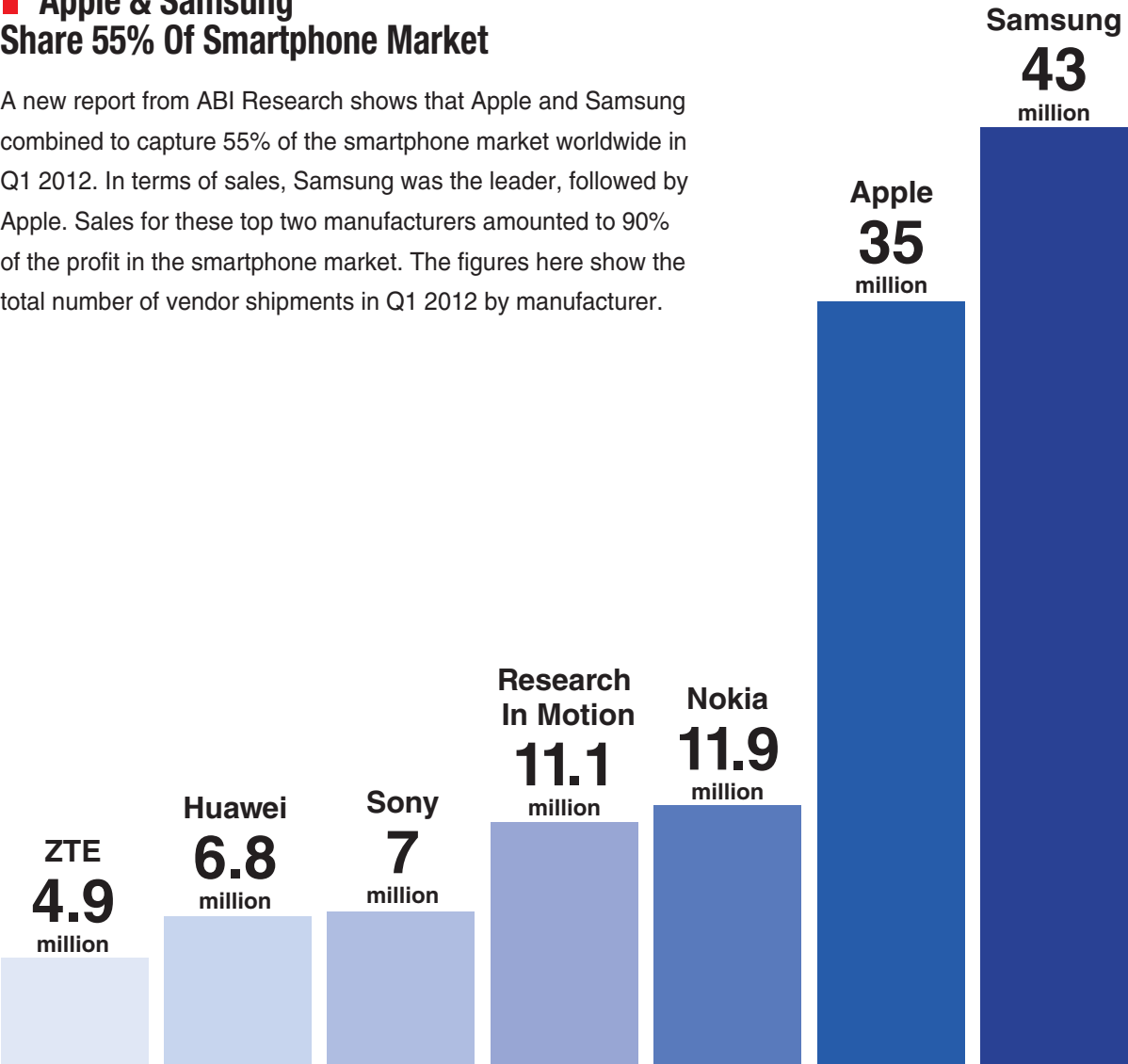
SPEC To Provide Benchmarks For The Cloud

SPEC (Standard Performance Evaluation Corp.), known for its various systems benchmarks (including for CPUs, graphics, servers, and virtualization), recently announced its new OSG (Open Systems Group), which is tasked with developing benchmarks for cloud computing systems. "While cloud performance takes into account many of the same characteristics as current SPEC benchmarks—throughput, response time, and power, for example—it also brings into play new metrics such as elasticity, defined as how quickly a service can adapt to changing customer needs," according to SPEC's press release. The new group will test both hardware and software.

Global Server Market Shows Decline

According to new research from IDC, factory revenues in the worldwide server market totaled about $11.8 billion in Q1 2012, marking a 2.4% year-over-year decline. Although there was a 2.1% increase in revenues from volume systems, said IDC's report, there was less demand for mid-range systems (11.2% decline) and high-end systems (10.2% decline). The figures here show Q1 2012 market share for the top vendors along with the decrease or increase in revenue compared to Q1 2011.

HP
29.3%
(-9.8%)

IBM
27.3%
(-7.3%)

Others
16.5%

Dell
15.6%
(-2.0%)

Fujitsu
5.2%
(+7.3%)

Oracle
6.1%
(-7.3%)
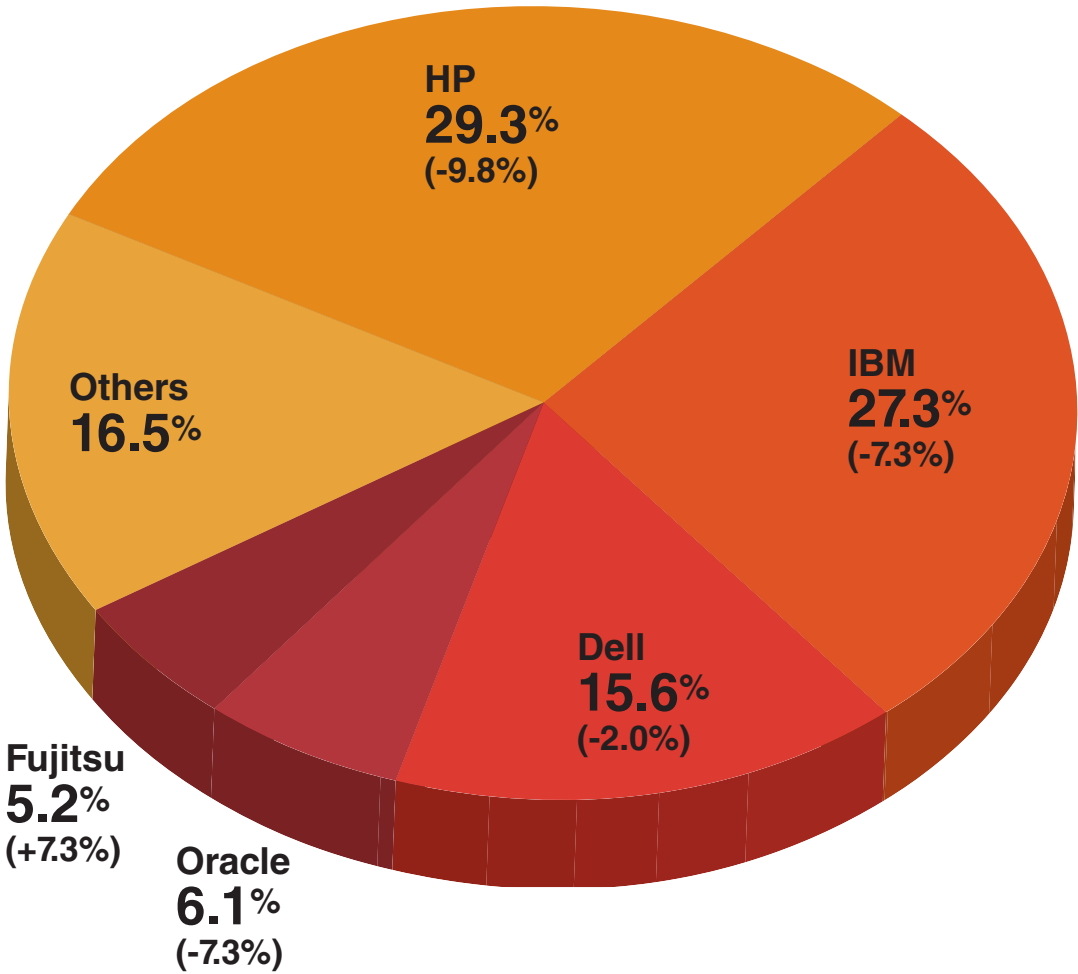
Wi-Fi & Small Cells To Alleviate Network Strain

Along with the tremendous adoption rate for mobile devices among businesses and consumers comes network strain, and wireless carriers have thus far anticipated network strain to worsen in the coming years. According to a new report from Juniper Research, however, as much as 60% of mobile wireless traffic will be offset by the use of Wi-Fi and small cells over the next five years. Juniper forecasts that small cell solutions, which can include units provided to individuals and businesses, will account for 12% of offloaded wireless data by 2016.

Oracle Acquires Another Social Company

Less than a month after announcing it had agreed to acquire SRM (Social Relationship Management) platform-maker Virtue, Redwood Shores, Calif.,-based Oracle again demonstrated its interest in the social intelligence space by acquiring Boulder, Colo.,-based Collective Intellect, which specializes in social media and text mining technologies. In its press release, Oracle indicated it would integrate Collective Intellect with its own cloud-based services and Social Platform.

Nokia Faces New Rating Downgrade

Fitch Ratings is reportedly considering downgrading Nokia's credit rating following the Finnish mobile phone manufacturer's announcement that its Q2 2012 margin will be lower than the 3% decrease posted for Q1 2012. Fitch already downgraded Nokia's rating in April, as did Moody's Investor Service. At that time, Fitch cited Nokia's Lumia 900 as a possible game-changer, saying that it might change the rating if the Windows Phone 7 smartphone sold well. The Lumia 900 has sold well, but not enough to positively affect Nokia's margins and affect the company's credit rating. Moody's recently downgraded Nokia's rating to junk status, as well.

Motorola Solutions Buys Rugged Device-Maker

Schaumburg, Ill.,-based Motorola Solutions announced it will acquire Psion, a London-based manufacturer of ruggedized mobile computers, for $1.36 per share or approximately $200 million in cash. Psion makes handheld computers and vehicle-mount computers for heavy-duty use and serves customers in more than 50 countries. "Psion is a compelling opportunity to strengthen our industry-leading, mobile-computing portfolio with ruggedized handheld products and vehicle-mount terminals that will deepen our presence in the global markets in which we compete," said Greg Brown, Motorola Solutions chairman and CEO, in a statement.

Apple Gives Google Maps The Boot

Beginning with the first iPhone and continuing through all of the latest models of iPhone, iPad, and iPod touch, Apple has chosen Google Maps as the default map app for the home screen. In recent years, however, Google launched the Android platform and showed itself to be a strong competitor in the smartphone and tablet markets. Now Apple is deleting Google Maps from its products in favor of its own mapping software, according to an announcement from Apple Senior VP Scott Forstall at the company's Worldwide Developers Conference. Google has updated its Google Maps for Android and Google Earth apps to add more enticing features, reportedly in anticipation of Apple's announcement.

Microsoft To Buy Private Social Networking Site Yammer

San Francisco-based Yammer has reportedly agreed to be acquired by Redmond, Wash.,-based Microsoft following days of acquisition speculation. Yammer has become popular in the business world for its private social networking platform. Yammer's service operates in much the same way as popular open social networking sites, offering ease of use and mobile access, but it incorporates enterprise-friendly features such as team-collaboration capabilities, administrative controls, and integration with common business software titles. As of press time neither Microsoft nor Yammer had provided any comments on the acquisition reports.

Most Corporations Considering Employee Monitoring

In its new "Conduct Digital Surveillance Ethically and Legally: 2012 Update" report, research company Gartner found that fewer than 10% of corporations currently use employee monitoring systems, but that 60% of those corporations surveyed plan to deploy such systems by 2015. Andrew Walls, research vice president for Gartner, cited "new technologies and services" combined with access issues to create potential security issues that organizations wish to address. "Given that employees with legitimate access to enterprise information assets are involved in most security violations," wrote Walls, "security monitoring must focus on employee actions and behavior wherever the employees pursue business-related interactions on digital systems."

Survey Indicates Move Toward "Multi-Cloud Approach"

A recent RightScale survey of more than 600 companies found that 68% plan to employ a multi-cloud strategy in the future. More to the point, 53% plan to use a hybrid (public and private cloud) approach and 15% plan to use a combination of multiple public clouds but no private clouds. Overall, 89% plan to use the public cloud in some fashion as part of a multi-cloud approach. "No one-size-fits-all approach will work for everyone, which is why it's important to choose a platform that will allow you freedom of choice now and into the future as you decide where and how to leverage infrastructure-as-a-service cloud providers," said RightScale CEO Michael Crandell in a press release.

Growth Reported In HPC Server Market

In terms of worldwide revenues, the HPC (High Performance Computing) technical server market is doing well so far in 2012. According to research company IDC, revenues reached $2.4 billion for Q1 2012, representing a 3.1% increase over Q1 2011. "HPC technical servers, especially Supercomputers, have been closely linked not only to scientific advances but also to industrial innovation and economic competitiveness," said Earl Joseph, program vice president for IDC's Technical Computing group, in a statement. "We expect the global race for HPC leadership in the petascale-exascale era to continue heating up during this decade." IDC expects revenues to reach $11 billion in 2012 for 7.1% growth compared to 2011.
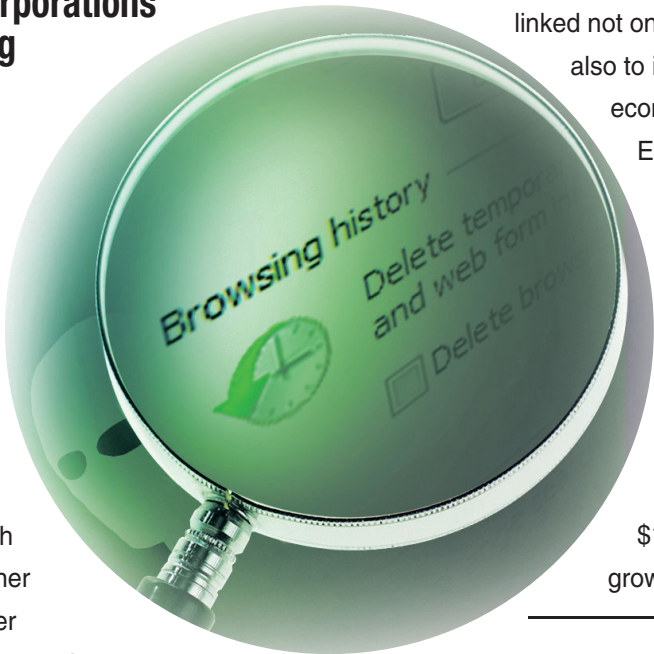
Will That Be A Debit Card Or A Smartphone?

There is little doubt among analysts that NFC (Near Field Communications), the short-range wireless technology that's typically associated with mobile payment systems, will take off in a big way in the near future. Earlier this year Gartner projected that 50% of all smartphones would soon have NFC capabilities, and a recent report from Juniper Research anticipates that fully one quarter of U.S. and Western European smartphone users will pay for products using NFC by 2017. Now two major UK banks, NatWest and RBS (Royal Bank of Scotland) have begun accommodating ATM cash withdrawal requests initiated by smartphones rather than plastic cards.

PHOTO LISTINGS

The *Processor* Photo Listings section includes brief overviews of data center products. All products listed have been released recently, so use this section to get up to date with what's new on the market and to find products you need.

Manufacturers:
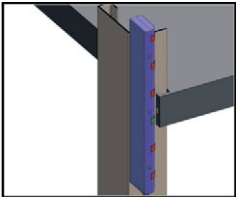Do you have a new product that data center/IT managers would be interested in learning about?

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The Eaton® 9E UPS delivers superior power protection for ever-expanding loads in today's space-constrained data centers. Facilitating a lower total cost of ownership (TCO) through three key features—energy-efficiency, internal batteries and compact footprint—the 9E is an ideal solution for small to medium-sized data centers and other applications desiring highly reliable power protection.

- Delivers up to 98% efficiency
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- Pre-wired for easy installation
- Up to 35% smaller than similar competitive solutions
- Allows dedication of more floor space to revenue-producing equipment

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Uptime Racks' air conditioned cabinet delivers the highest cooling capacity in the industry, while using no additional floor space. The 13,000 Btu/hr cabinet provides secure and reliable cooling to mission critical IT equipment. Uptime Racks are the ideal cooling solution for small IT closets or large data centers, providing efficient primary, supplemental, or back-up cooling.

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U-Track℠ is designed to provide asset-tracking data, precise to the actual rack unit position, to the Methode DCIM manager. Via a robust API, U-Track can feed live data into leading DCIM software suites on the market today. For the first time the expensive, time consuming, and operationally risky act of taking data center inventory is reduced to the push of a button.

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TIME DISPLAY - CLOCK

The ED210 is a time of day Digital Time Display with Ethernet connectivity.The ED210's Ethernet connection allows its internal time base to be periodically synchronized with an NTP server on your network. Features:

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- 2400 hour or 1200 AM/PM Format
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  -14 gauge frame, formed for strength
- Cable Management
  -Increased rear vertical capacity (over 9")
- Power Handling
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- Contour Mesh Doors
  -Standard front and rear
  -Increased area of mesh & total airflow

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- Modular design on 2.5-, 3.5-inch HDD cages and M/B tray
- Front and rear side HDD cage installation
- Versatile front device configuration via four types of modular cages
- 6Gb/s Mini-SAS backplane with Expander and SES2 support
- Built-in 6x 80mm HotSwap PWM fans
- Optional rear 2x40mm exhausted fans
- Sturdy chassis structure through side-folded
- Support 2U single or 2+1 redundant PSU

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TOLIS Group's bruAPP backup appliance resolves the issues of configuration, installation, and compatibility faced when implementing a networked system backup strategy.
Proven reliability, cost-effectiveness, scalability, and client system software agents available for all modern operating systems are delivered without the requirement for heavily experienced system/network administrative personnel. Tightly integrated hardware components and the venerable BRU Server™ software provide backup and restore services independent of any server on the network, including virtualized environments. 1U to 12U models (3U/4U chassis stackable to support growth) are available to provide D2T, D2D, and D2D2T services; up to 132TB of net RAID-6 stage capacity in a 4U chassis, and LTO tape technology options are available: up to 4-drive/96 slot libraries.

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- Can be fitted with both SAS or SATA hard drives and support fast SATAIII for 6Gbps transfers
- Processor choice can be from the full line provided by Intel or AMD
- Boards can be fitted with 512GB of DDR3 memory, 10GbE network cards, the latest NVIDIA or AMD GPUs, and 6GBps RAID controller cards
- Intelligent Platform Management Interface lets you manage and monitor the servers from a remote location

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- Hardware RAID with SAS2, SATA3 Enterprise drives
- Scalable up to 720TB with additional JBOD units
- 4 X 10 Gigabit Ethernet, Network bonding supported
- VMware, Xen, Microsoft Hyper-V compatible
- No additional cost for clients and capacity expansion

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CASE STUDY

Faster, More Reliable Storage

Servosity Boosts Its Backup Solutions With Aberdeen's AberSAN ZXP

THROUGH ITS BACKUP and disaster recovery offerings, solution provider Servosity provides an important service for managed service providers and IT resellers. The company's backup services are deployed using cloud infrastructure, which requires servers and storage that can handle the mission-critical data collection and protection needs of multiple clients. For Servosity, reliable storage is a No. 1 concern.

"We had some very tough challenges," says Damien Stevens, founder and CEO of Servosity (www.servosity.com). "We needed

24/7/365 operations with no maintenance windows or unplanned downtime [and] unlimited growth capabilities, and we needed the speed of SAS drives and the sophistication of an Enterprise SAN—and we needed all that for far less the cost of an enterprise SAN or even SAS drives. We needed SAS performance and reliability on a SATA budget."

Choosing The Right Solution

Servosity knew it wanted to take advantage of Nexenta's NexentaStor NAS/SAN software platform, but it also knew it would need the right hardware to run it. That's why Servosity opted for two of Aberdeen's AberSAN ZXP High Availability ZFS SAN units and one 45-bay JBOD to handle the NexentaStor XZFS file system with 144TB of licensing. Servosity chose Aberdeen's AberSAN solution for its versatility and its ability to work well with the NexentaStor platform.

"The ZFS file system is stable, scalable, and fast," Stevens says. "On top of that, Nexenta's NexentaStor commercial offering adds additional features as well as enterprise support, and Aberdeen is one of the few vendors that can custom-build a hardware solution designed specifically for NexentaStor."

Aberdeen's AberSAN ZXP product is designed to be highly scalable and has a variety of customizable options. For instance, the base solution is a 2U head unit, but there are options for 3U and 4U JBOD expansions. There are also multiple power supply, OS, and storage options.

Implementation & Results

Stevens admits that Servosity had some unique needs, so he knew there would be challenges along the way. "With some of these technologies, we've been a very early adopter," Stevens says. Because of this, Servosity went through an extensive testing phase to find the right balance of hardware and software to get the performance it needed. He says Servosity wouldn't have been able to create the perfect solution to its problem without the constant support of Aberdeen. "The difference for us has been Aberdeen and Nexenta working together with our engineers to custom-build and then custom-tune a system that meets our needs and has exceeded our expectations," Stevens says.

Stevens says that traditional systems such as the one the company installed are often at risk for "silent data corruption," which happens naturally over time with a constant flow of data. To prevent this, ZFS systems self-heal

when a disk presents corrupt data, which protects against hardware failure and prevents the hardware from corrupting the data. In addition to preventing data corruption, Servosity is pleased that the system can use solid-state drives to cache for SATA and SAS drives to make the system faster for a lower cost.

Overall, Servosity is happy with its decision to invest in Aberdeen's AberSAN solution and plans on using Aberdeen's products in the future. In fact, Stevens says that Servosity's projections "show a need for 400% of our current infrastructure in the next 12 months." To help meet the demand, Servosity will continue to use Aberdeen for its highly customizable and scalable Nexenta products in order to help the company continue to grow. **P**

Environmental Monitoring

AVTECH Room Alert 11ER

The Room Alert 11ER from AVTECH is an environmental monitoring device designed to help SMEs keep tabs on temperature, humidity, and other environmental conditions in computer rooms and data centers. The device keeps track of conditions via internal and external sensors and sends alerts to admins when predetermined thresholds are met or exceeded. The Room Alert 11ER's sensors can gather environmental information from multiple locations within an 1,800-foot radius and can be controlled and adjusted via an easy-to-use browser-based interface.

- Plug-and-play setup for immediate use, with or without a host PC
- Alerts can be sent by email, email-to-SMS, SMTP, Web page update, and more
- Real-time sensor status, data logging, and graphing
- Uses just 1U of rack space in a 19-inch form factor
- Includes one built-in digital temperature sensor, two digital sensor ports, and eight channels for switch sensors or dry contacts

Best For: Enterprises that need to protect mission-critical servers from changes in temperature and humidity.

Price: Starts at $515

Contact: (888) 220-6700 | www.AVTECH.com

AVTECH Room Alert 32E & 32W

AVTECH's Room Alert 32E and 32W are advanced hardware appliances designed for IT and facilities environment monitoring, alerting, automatic corrective action, and wireless sensor monitoring. They can monitor computer room temperature, humidity, power, room entry, and more in multiple locations, and they run using Power over Ethernet. Both models come with a full license of the AVTECH Device ManageR software, which automatically discovers devices, and a year-long subscription to AVTECH's Maintenance, Support & Update Service, with firmware and software updates, technical support, and full hardware replacement on the ID box free of charge.

- The 32W can accommodate about 100 sensors
- Password-protected built-in Web server
- Relay outputs let you remotely turn devices on or off, and 0-5V analog sensor inputs let you log information from other manufacturers' sensors
- Monitor units with built-in Web server, bundled Device ManageR, or any SNMP application

Best For: Enterprise-level monitoring in any location where running cables may be difficult or impossible.

Price: $995 (32E) and $1,195 (32W)

Contact: (888) 220-6700 | www.AVTECH.com

Rackmount Solutions' Remote Physical Monitor

The Uptime Devices Remote Physical Monitor unit from Rackmount Solutions supports remote monitoring that lets users protect equipment and sensitive electronics. The RPM uses Remote Intelligent Multi Sensors technology, which lets it collect environmental and security data to send alerts via email, SMS, or SNMP when the monitored equipment exceeds the user-defined limits. Each unit has a battery-backed clock for accurate recording, and the device also supports up to 250 different RIMS, located up to 1,000 feet away.

- Real-time monitoring of temperature, humidity, airflow, and dry contacts
- Dry-contact sensors for use with 10-port dry contacts and HEAT RIMS
- Monitor and control third-party power strips
- Two-port power RIMS monitor, track, and manage IT equipment current load and voltage

Best For: Data centers and standalone applications that require temperature, humidity, and remote power management.

Price: Starts at $799

Contact: (866) 207-6631 | www.rackmountsolutions.net

Black Box AlertWerks™

The AlertWerks environmental monitoring system from Black Box enables remote monitoring of conditions in data centers, buildings, industrial sites, and more. The system is based on ServSensor hubs—just connect a hub to your network, attach AlertWerks Sensors, and set it to notify you of alarm conditions. The system features a wide range of sensors, including temperature, humidity, airflow, water, smoke, and AC voltage.

This extensive family of remote monitoring products features the ServSensor V4E (EME134A-R2), a premium sensor hub that supports up to 8 intelligent sensors—or up to 500 with the use of expansion modules—plus four surveillance cameras. The ServSensor V4E can send alerts by email, SNMP—even text message.

- Complete environmental monitoring over any IP network—even the Internet
- Choose from a wide range of sensors
- Centrally manageable with an easy-to-use, Web-based interface

Best For: Monitoring critical areas that can't have an attendant onsite full time.

Price: ServSensor hubs start at $267.50; the ServSensor V4E is priced at $1,492.65

Contact: (888) 433-5049 | www.blackbox.com/go/AlertWerks

Sensaphone Web600

The Sensaphone Web600 provides Web-based monitoring at an affordable price. The Web600 lets you track critical temperatures and other conditions in computer rooms, data centers, and other areas, and it immediately alerts you via email, text, or SNMP traps when values are out of the normal range. The Web600 can read values from humidity, air quality, water leak detection, and other sensors.

- Completely standalone and easy to use
- Can connect up to six sensors to monitor a variety of equipment and conditions
- Built-in Web server provides quick and easy information about monitored conditions
- Optional battery backup

Best For: Organizations in need of a flexible standalone unit for monitoring temperature and other conditions.

Contact: (877) 373-2700 | www.sensaphone.com

Server Technology Environmental Monitoring Control Unit-1-1B

Server Technology's EMCU (Environmental Monitoring Control Unit)-1-1B is an IP-based product that monitors temperature and humidity, features water and fluid sensors, supports four dry contact door sensors, and accommodates additional power-fed analog input sensors. A Web interface provides at-a-glance reports of temperature, humidity, water detection, and cabinet door status.

- Support for HTML and command-line interfaces
- Supports two temperature and two humidity measurements out of the box
- No additional software necessary
- Mounting tabs included for 0U mounting

Best For: Data centers, colocation sites, Web hosting facilities, telecom switching sites, POP sites, server closets, and any unmanned area that needs to be monitored.

Contact: (800) 835-1515 | www.servertech.com

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Upsite Technologies® Upsite Temperature Strip

The Upsite Temperature Strip, from the LOK Family of Solutions™, features an acrylic self-adhesive backing that lets users install it on any IT equipment or cabinet door where the potential for hot spots and other heat-related issues exists. It accurately provides a visual reading of intake air temperatures based on standards established by the Uptime Institute, ASHRAE, and equipment manufacturers for acceptable operating ranges.

- Colored range indicators display reliable temperatures within two minutes
- Calibrated in accordance with ASTM standards
- Measurements accurate to within +/- 10 degrees Celsius
- Monitor the intake air temperature of any piece of IT equipment for a low cost per strip
- Displays same-sized Fahrenheit and Celsius temperature scales
- Winner Best Product Award in the Infrastructure category

Best For: Monitoring temperatures and hot spots on any IT equipment and in data centers. Now available on HotLok® blanking panels.

Contact: (888) 982-7800 | www.upsite.com

ITWatchDogs' WatchDog 100

The WatchDog 100 is a self-contained unit with on-board temperature, humidity, and dew-point sensors. It has an input capacity of eight external sensors and an output of one NO/NC relay contact for triggering external devices like an auto-dialer or back-up fan. The WD 100 allows users to keep an eye on remote conditions from a secure web interface and receive SNMP, E-mail, text message, and voice call* alert notifications when user-adjustable thresholds are exceeded. The device requires no software and is accessed securely over IP. Built-in PoE option allows users to eliminate the need for electrical wiring by combining power and data through a single connection.

- Sends SNMP, email, SMS, and voice call* alerts
- View charts and graphs online via the Web GUI
- Compatible with up to four IP cameras (not included) for monitoring the area remotely
- Connect up to 8 additional sensors
- FREE firmware updates and technical support for life

Best For: Monitoring environmental conditions to protect mission-critical facilities.

Price: $279

Contact: (512) 257-1462 | www.itwatchdogs.com

*Auto-dialer required

Temperature@lert Cellular Edition

Temperature@lert Cellular Edition is a high-performance device that monitors the ambient temperature in your server room or other location alerts you via email, telephone, and text message when the temperature rises or falls outside your acceptable range. When you plug the Temperature@lert Cellular Edition into a power outlet, it immediately begins transmitting temperature readings over the AT&T and T-Mobile cellular phone networks to our 24/7 monitoring system and Dashboard Web site.

- Monitors the temperature (and optional humidity) every 5, 15, or 60 minutes
- Notifies you via phone call, email or text message of any changes in room temperature
- Completely independent of your existing infrastructure: no phone line or Internet installation needed

Best For: Any organization in need of a way to remotely monitor its critical data center environment.

Price: Starts at $399.99; all-inclusive monthly monitoring plans start at just $15 with no annual contract

Contact: (866) 524-3540 | www.temperaturealert.com

RLE Technologies FDS-Wi

The FDS-Wi is a wireless sensor network manager - it receives signals from wireless transmitters and relays them to facility monitoring systems. A robust web interface provides direct alarm notification, and also allows users to monitor transmitters at a glance and to operate the FDS-Wi as a stand-alone device. The convenient wireless design reduces installation and system expansion costs frequently associated with hard-wired sensors and systems, and allows users to complete installation without the aid of an electrician.

The FDS-Wi can easily integrate into larger systems, such as a network management system via SNMP, or a building management system through BACnet. Modbus protocols can serve as a network repeater to convey alarm status information to a centralized location.

Use the FDS-Wi and RLE's wireless sensors to monitor:
- Temperature/humidity
- Water Leaks
- Motion
- Power
- Pressure
- Airflow
- Equipment status
- Third-party devices

Best For: Any company looking to leverage wireless connectivity for facility monitoring.

Price: Starts at $1,200

Contact: (800) 518-1519 | www.rletech.com

Uptime Devices SMS Sensor Alert™

Uptime Devices' SMS Sensor Alert™ is easy to install and use; there's no network or landline needed and zero software to install—the SMS Sensor Alert just needs to be powered up to start monitoring your site via its user interface. SMS Sensor Alert can monitor temperature, humidity, liquids, security, voltage, and many other conditions. The device hosts up to 12 sensors, including temperature, humidity, dry contact, security, water, UPS battery status, and main power monitoring. Internal battery keeps the SMS Sensor Alert on in case of power outage and an alert is sent out to notify you that the power is out.

- Cloud-based data storage means logging is continuous and can be accessed in a secure cloud-based data log
- Logs conditions and alarms at user-defined intervals
- Multiple alarm limits with alerts via SMS
- Daily status notification
- Internal buzzer can be activated to alert local personnel of an issue
- Simple installation—no computer needed
- U.S.-made and U.S.-based support

Best For: Remote sites, cold storage, freezers, refrigeration units, and power outage monitoring.

Price: Starts at $485, plus monthly monitoring plan starting at $15 per month

Contact: (512) 328-1800 | www.uptimedevices.com

Server Nurse's Sensor Hub (SH-2)

The Uptime Devices' Sensor Hub (SH-2) from ServerNurse.com is an easy-to-use, Web-based environmental, power, and security monitoring network device. Sensor Hub (SH-2) notifies personnel when conditions exceed user-defined limits. With Uptime Devices' wide range of environmental sensors, Sensor Hub can monitor temperature, humidity, liquid, dry contact, security, voltage, and other environmental states. Among the benefits are preemptive notifications and alarms, component life maximization, and optimized cooling efficiency that brings down energy costs.

- Two auto-sense intelligent sensor ports
- 0U rack-mountable
- Browser-based user interface—no software needed
- Send alerts through email or SNMP
- Real-time graphing
- Monitor HVAC, UPS, and legacy equipment
- U.S.-made and U.S.-based support

Best For: Data centers, power plants, manufacturing facilities, and other areas where a stable environment is vital to business operations.
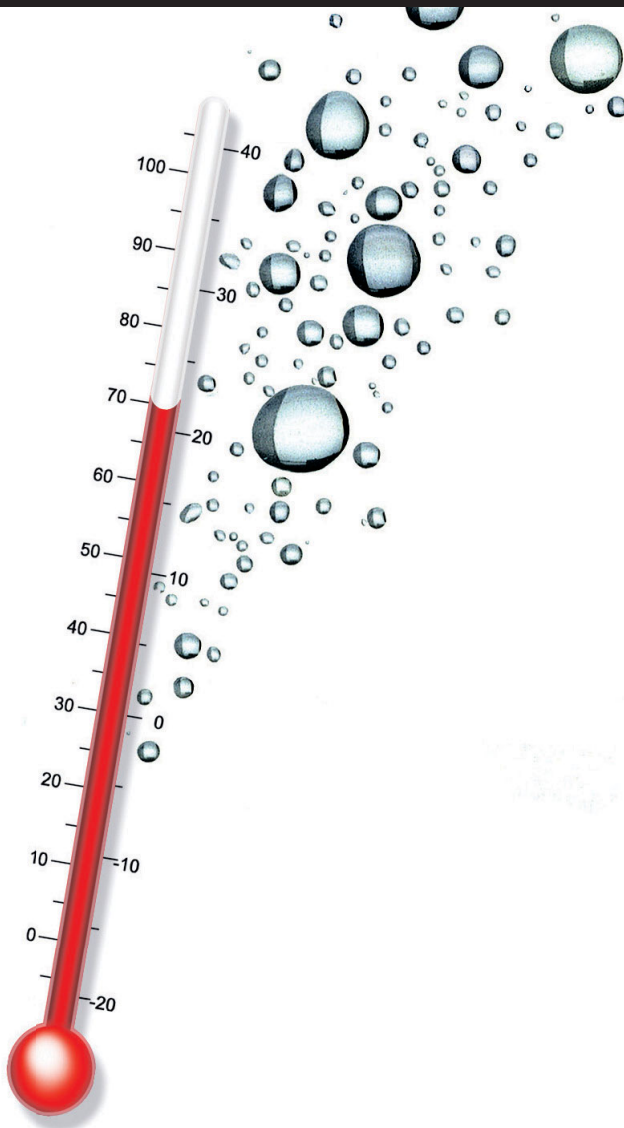
Price: Starts at $235

Contact: (512) 861-0837 | www.servernurse.com

BUYING TIPS:

Environmental Monitoring Equipment

ENVIRONMENTAL MONITORING offerings are not things an enterprise invests in on a whim. Every organization has unique infrastructure limitations, climate issues, and monitoring needs, so no one-size-fits-all solution exists. Decision makers must be well versed in the latest environmental monitoring tech available, as well as in areas such as sensor applications, notification capabilities, and management automation, to make appropriate choices.

Connectivity options. Until recently, any active monitoring product needed to be wired to be networked. But Wi-Fi and cellular technologies have taken up the slack, enabling customers to implement a monitoring system in remote and infrastructure-constrained locations. "Cabling and wiring inhibit where you can put sensors," says Chris Gaskins, VP of product development at RF Code (www.rfcode.com). "For data centers especially, you want to be able to micro-instrument your facility to capture all the environmental data you can."

Monitor a variety of conditions. For critical systems that handle the most important data, it is vital to monitor a variety of conditions, even those unlikely to affect performance, to ensure against loss and downtime. Key environmental sensor types that can deliver proactive feedback include temperature, humidity, airflow, water leakage, and dry contacts. Power and voltage sensors are also important, even if the power sources have a reliable track record. Security-based sensors can also be incorporated into an environmental monitoring system.

"Heat, humidity, and airflow are just the beginning when it comes to monitoring," says Jean-Paul Daemen, CEO of Uptime Devices (www.uptimedevices.com). "The more elements you monitor, the more likely you are to be ready for the unforeseeable."

Notification options. A state-of-the-art environmental monitoring system is nothing without notifications. After all, says Bob Douglass, vice president of sales and marketing at Sensaphone (www.sensaphone .com), "The primary motivation for adding an environmental monitoring system is to know when you have a problem as soon as possible." Common notification options include email, LEDs, audible alarms, beacons, sirens, Web alerts, SNMP, automated phone calls, and SMS.

Ensure ample coverage. Consider the room size and amount of equipment to be monitored and plan the number and placement of sensors accordingly. "If your deployment is small, a few points of measurement may suffice, but if you have a large operation, you may require environmental measurements every few feet," says Brandon Siri, senior marketing representative at Server Technology (www.servertech.com).

"It makes sense to have a monitoring solution that grows as easily and seamlessly as possible," Daemen adds.

Consider future support. Choosing the right solution means little if you don't have long-term support. "Look beyond the checklist and make sure that you're getting future enhancements, that you have access to support, and that the company stands behind its products, because all products eventually fail," says Michael Sigourney, senior product specialist at AVTECH (www.avtech.com). "You'll want to know that somebody's there."

Keep costs under control. Mo Sheikh, marketing manager of IT WatchDogs (www .itwatchdogs.com), advises enterprises to beware hidden costs and fees. "Invest in an environmental monitoring solution that doesn't have a significant long-term cost of ownership," Sheikh says. "A long-term data center management and monitoring solution is critical to preserving an IT investment, but it should not generate recurring expenses that degrade ROI." ⊞

BUYERS' CHECKLIST

✔ Do you need to monitor remote or local systems?

✔ Do you have wired networking or power limitations?

✔ What kinds of notifications do you need?

✔ Do you have other monitoring needs beyond environmental?

✔ How many and what types of sensors do you need?

KEY TERMS

Dry contact.
Refers to an electrical contact that does not make or break a circuit.

SEMS (Server Environmental Monitoring Systems).
Refers to products designed to record and report the environmental conditions of servers and clients.

SNMP (Simple Network Management Protocol).
A network protocol that lets users monitor network availability and performance.

CASE STUDY

The Means To Expand

Aberdeen Helps Enable Growth At G & G Squared Enterprises

ONE OF THE MISSION STATEMENTS that Aberdeen displays prominently on its Web site (www.aberdeeninc.com) is "Perfecting the science of scalability. Because one size does not fit all." Put another way, Aberdeen has the experience, personnel, and ability to assist any company with its individual server and storage needs regardless of its size.

It's this capability that G & G Squared Enterprises (www.gdickinson.com) discovered when it set out to replace its existing bank of aging servers and open the company to the new market of virtual data centers, says G & G CEO George Dickinson II.

Going Virtual

Originally operating as a private Web hosting provider for individuals and select companies, G & G took its offerings public in 2005. Today, Dickinson describes G & G as providing customers a "place where small businesses are encouraged to develop their Web potential through the use of Web hosting technology" and establish a Web experience to increase their Web awareness and audiences.

Dickinson says the company's customer base ranges "from the little mom-and-pop shops to medium-sized business."

In early 2011, the company found itself in need of upgrading its servers. Before ultimately selecting products from Aberdeen to fill its needs, G & G conducted research that involved comparing servers and storage servers from several other well-known competitors. "When comparing all systems configured the same, Aberdeen was the lowest price," Dickinson says. After speaking with Aberdeen and downloading all the spec sheets, the company purchased its equipment from Aberdeen in April 2011.

G & G purchased an AberNAS 167LX NAS from Aberdeen's AberNAS 160LX Series, which includes models based on the Intel® Xeon® Processor E5506 platform.

The models also include 3GB of ECC DDR3 memory, four RAID-optimized (0, 1, 5, 6) and hot-swappable SATA 3Gbps drives, and a SAS expansion port that enables connecting to various Aberdeen XDAS storage models.

Suitable for small businesses on up to high-end IT environments, the 1U VMware-certified, Linux-based (64-bit, enterprise-class), and iSCSI/IP SAN ready AberNAS 160LX Series models range from 2TB to 12TB storage included.

G & G also purchased an Aberdeen Stirling 56T Mini 1U Rack, a SuperServer 6015V-MRB Mini-1U Rack Dual Xeon server based on Intel® Xeon® Processors and offering up to 16GB of ECC FBDIMM DDR2 memory. Dickinson says the process from unboxing to implementing the new equipment only took about an hour and a half. And the products have "exceeded the planned project," he says, something that has enabled G & G to open itself up for new projects in coming years.

A Warranty That Entices

Beyond Aberdeen's experience, Dickinson says, he was also enticed by the standard five-year warranty Aberdeen offers, the off-the-shelf replacement parts provided, and its designation as a VMware-certified partner—all of which are offered at a "fraction of the

cost of competitors," Dickinson says. "After doing years' worth of researching," he says, Aberdeen was "exactly what the company needed" to complete its virtualization project.

It was the five-year warranty, however, that "was the first thing that enticed me," Dickinson says. Aberdeen provides the warranty with all its fully configured rackmount servers, including preconfigured Stirling servers and custom-designed servers, warranting the models from the date they're shipped to be free of material defects and covering workmanship defects for the product's lifetime.

In addition, Dickinson says, "The support team is great. I have not had any issues with the equipment." And, he says, G & G is "enjoying the added space and lowered utility bills" it has experienced since its purchase. ℙ

PRODUCT SPOTLIGHT

KVMs

Black Box ServSwitch DKM Switching System

The ServSwitch DKM KVM Switching System from Black Box comprises modular housing chassis with two, four, six, or 21 slots and transmitter and receiver interface cards. The DKM extender setup provides the widest range of possible combinations, which makes it easy to customize for specific applications. The DKM switches and modular cards work over single- or multimode fiber cables or over CATx cables. The switches also can be set up in a variety of configurations, including matrix switch, dual- or quad-head KVM switches, Share Mode, and Classroom Mode.

- Four housings are available: desktop housings for two, four, or six boards or a 19-inch, 4U rack for 21 boards
- A redundant power supply option is available for some housings
- Modular transmitter and receiver cards can be copper- or fiber-based
- Extend DVI-D video, USB HIDs, audio, RS-232, or USB 2.0

Best For: KVM extension setups that require flexibility.

Price: Housings start at $164.95; interface cards start at $119.95

Contact: (724) 746-5500 | www.blackbox.com

Black Box ServSwitch Secure KVM Switches with USB

Black Box ServSwitch Secure KVM Switches with USB are EAL4+ Certified and TEMPEST Level 1 Qualified, surpassing the security profiles of most other KVM switches. ServSwitch Secure switches provide control and separation of up to four PCs connected to secure and non-secure networks through just one keyboard, monitor, and mouse. Users can safely switch between as many as four computers operating at different classification levels without worry. ServSwitch Secure KVM Switches with USB prevent data from leaking between ports and to the outside world and prevent data from being stored in the device.

- Prevent electronic snooping
- Available in two- or four-port models
- Support DVI-I video
- Feature high port-to-port isolation and external tamper-evident seals
- Some models include support for card access readers

Best For: Military and governmental organizations that depend on keeping sensitive data from leaking to the outside world or between secure and non-secure systems.

Price: Starts at $475.95

Contact: (724) 746-5500 | www.blackbox.com

Rose Electronics QuadraVista HDMI KVM Switch

The QuadraVista HDMI is a KVM switch from Rose Electronics used to control up to four HDMI or DVI video-equipped computers. Designed for display flexibility, the switch allows all video sources to be displayed simultaneously, while providing the ability to quickly switch any video input to full-screen display. When multiple sources are displayed, each window can be resized, repositioned, swapped, or locked in place with a click of the mouse. Resolutions up to 1,920 x 1,200 are supported, and output monitor display capability is automatically detected and supplied to connected computers. The computers are controlled through either USB or PS/2 keyboard and mouse interface.

- Accepts either digital or analog audio streams
- Configuration software allows the user to create display presets, which are stored in the switch and recalled with simple keyboard commands
- Can be controlled from an external computer or controller
- Control and monitor up to four HDMI video sources on a single display
- Picture-in-picture, touchscreen, and USB hub support

Best For: Enterprises in need of a powerful, flexible multi-viewer product.

Contact: (800) 333-9343 | www.rose.com

RackSolutions Rackmount KVM

The Rackmount KVM from RackSolutions is a low-cost, space-saving monitor and keyboard mount that only uses 2U of rack space and works with square, round, or threaded hole racks. You can use your own monitor with this KVM, or you may select an option that comes with a 17" or 19" monitor. The mounting depth adjusts from 15.5" to 31.5" to give you flexibility when installing it in your rack.

- A fraction of the cost of typical OEM solutions
- Works with any 4 post, 19" rack (2 post options also available)
- 28" travel rack rail equipped with ball bearings for extra support and easy slide control
- Compatible with most KVM devices
- Trackpad keyboard supports PS/2 and USB connections
- Comes assembled with keyboard and monitor cables already routed; the only assembly required is the monitor
- Cable management arm included

Best For: Enterprises that need a low-cost, feature-filled KVM that conveniently slides into the rack when not in use.

Price: Starts at $399 (without monitor)

Contact: (888) 903-7225 | www.racksolutions.com/kvms

RackSolutions 2-Post Rackmount KVM

The 2-Post Rackmount KVM from RackSolutions is a flexible KVM solution that can be purchased with a 17" or 19" monitor or without a monitor, allowing enterprises to use their own monitors for even further savings. The 2-Post Rackmount KVM installs in any 2-post, 19" rack, can be flush mounted or center mounted, and is compatible with 10-32 or 12-24 threaded holes.

- Space-saving trackpad
- Compatible with USB and PS/2
- Ball bearing slides with 28" travel
- Compatible with most KVM devices
- Comes assembled with keyboard and monitor cables already routed; the only assembly required is the monitor
- Cable management arm included

Best For: Companies that need a low-cost, flexible KVM solution that's easy to implement.

Price: Starts at $439.99 (without monitor)

Contact: (888) 903-7225 | www.racksolutions.com/kvms

Rose Electronics Xtensys CAT 5 KVM Switch

The Xtensys CAT 5 KVM switch from Rose Electronics can be deployed and scaled to any computer environment, from the simplest to the most complex. Enterprises can connect either a miniature Rose KVM transmitter or a serial cable to the RJ-45 computer input connectors on the unit, and it auto-detects the interface; if video is present, it will automatically measure the distance and equalize the video for maximum clarity. On the user side, you can connect a KVM user station to access any computer, and the built-in OSD and hotkey system lets you select a computer using simple keyboard commands or choose from a list and switch to it instantly.

- Modular architecture and built-in high-performance video bus
- Auto-equalization and skew on UTP cable for video up to 1,920 x 1,440
- Models available for up to 16 users and up to 64 CPUs
- Connect a user station to multiple Xtensys units
- Advanced security features

Best For: Enterprises looking for a flexible, easy-to-use KVM solution.

Contact: (800) 333-9343 | www.rose.com

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Rackmount Solutions CyberView Matrix High-Density CAT 5 KVM (UIP-3202)

The CyberView UIP-3202 from Rackmount Solutions is a 1U high-density CAT 5 KVM switch with 32 ports. It offers a maximum distance of 40 meters (130 feet) between your server and KVM switch with the rear cable management using CAT 5 cords. With the UIP-3202, you can mix PS/2, USB, and SUN with multiplatform switch capability. A second user can work securely over 128-bit encrypted IP access using the Web interface to control multiple servers down to the BIOS level.

- Use of the RJ-45 CAT 5 interface allows for a higher number of ports in smaller density
- Traditional CAT 5 cords provide simpler cable management compared to coaxial cables
- 128-bit secure browser-based user access from anywhere in the world over IP
- Advanced user profiles and configurable OSD hotkey combinations

Best For: Enterprises that need a KVM switch that offers increased density, increased distances, enhanced cable management, and multiplatform capabilities over traditional KVM switch platforms.

Price: $1,543

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions IP DB-15 KVM Switch

The IP DB-15 KVM Switch from Rackmount Solutions lets you access up to 128 servers from anywhere in the world over IP. It comes in both an eight-port (IP-802) or 16-port (IP-1602) version with three-in-one KVM cable in 6-, 10-, 15-, and 33-foot lengths. The local console supports a resolution up to 1,920 x 1,440 and has two USB Type A ports for a keyboard and mouse. The remote console has a resolution of 1,600 x 1,200 and can accommodate up to 15 user logins.

- Eight or 16 ports in 1U of rack space
- 128-bit secure browser-based user access from anywhere in the world over IP
- Cost-efficient remote server management
- Multiplatform support: PC, Sun, IBM, HP, and Dell
- Supports Windows Vista/2003/XP/2000, Linux, Netware, Unix, and DOS

Best For: SMEs in need of a cost-efficient way to manage up to 128 servers remotely.

Price: $913 (16-port), $724 (eight-port)

Contact: (866) 207-6631 | www.rackmountsolutions.net

Trendnet TK-804R

Trendnet's eight-port TK-804R KVM switch features an on-screen display that lets users manage multiple computers with just one keyboard, monitor, and mouse. It supports USB and PS/2 interfaces on the console side and USB interface on the PC side. Users can switch between PCs using hotkey, push-button, or on-screen display for flexible management and can hot-plug PCs quickly to avoid downtime.

- Supports high-quality video up to 2,048 x 1,536
- Advanced adjustable auto-scan modes for monitoring multiple computers
- LED display for easy status monitoring
- Password protection with auto timeout logout
- Auto-detect power module bank number when daisy-chaining
- Built-in daisy-chain port for cascading up to 16 levels (128 computers) of up to 30 meters total distance
- Beep alert for port-switching confirmation
- Standard 19-inch 1U rackmount design

Best For: SMEs that need to monitor multiple PCs quickly and efficiently.

Price: $299.99

Contact: (888) 326-6061 | www.trendnet.com

Trendnet TK-IP101

The TK-IP101 from Trendnet is a one-port KVM over IP switch that provides cost-effective remote server management for multiple users, regardless of server status. It eliminates the need to physically be in the server room to troubleshoot, reboot, and edit pre-boot functions. The TK-IP101 gives admins highly secure access to both Windows and Java-based clients. The TK-IP101 supports four concurrent logins with up to 16 active user accounts.

- Save time and resources by managing resources remotely
- Centralize management of multiple servers when connected to a conventional KVM switch
- Crisp 1,600 x 1,200 resolution
- Intuitive Web user interface permits upgrades and backups
- Supports user-friendly Telnet sessions and FTP access
- Use with Trendnet's TK-RP08 to control on/off power cycling of multiple devices remotely
- Works with LDAP, RADIUS, and Active Directory servers
- Supports Ethernet RJ-45 and PPP connection over serial RS-232 interface with data rates up to 1Mbps

Best For: IT staff that want to control BIOS-level functions, Windows-based applications, and other interfaces from a single intuitive Web user interface.

Price: $499.99

Contact: (888) 326-6061 | www.trendnet.com

BUYING TIPS:
KVMs

IF THERE'S ONE TRUISM concerning KVMs, it's that they offer plenty of options. Brett Femrite, Rackmount Solutions director of business development (866/207-6631; www.rackmountsolutions.net), says models include simple desktop options that control a handful of computers up to enterprise-level, IP-based KVMs with integrated matrix switching that let multiple users simultaneously access different devices.

That many options, however, means there are many features to weigh for given applications, Femrite says. For small to midsized enterprises, he says, one security-related feature worth considering is automatic time out, which automatically disconnects users after a specified period of inactivity. Another priority feature for data centers with multiple users accessing the enterprise's devices is permissions-based access rights, which grants specific users access to only the devices and administration levels they need and no more.

Decide How You'll Switch

Where switching among the computers connected to the KVM is concerned, Mike McCurry, U.S. product manager for KVMs at Black Box (www.blackbox.com), says many Black Box clients request hotkey switching, which lets the operator switch between servers/CPUs via the keyboard. On-screen display switching, which allows for switching from a pop-up menu, is also popular. Third on the list, he says, is multilayered switching technology that lets a user select connectivity to one CPU while selecting peripherals from another CPU. An example, he says, would be playing audio from CPU 1 over desktop speakers while connecting to applications via CPU 2 and printing from CPU 3's connected printer.

Don't Forget The Basics

McCurry says one item that IT often overlooks when selecting KVMs is accounting for cable and/or server access modules. "This is the equivalent to not getting the batteries for a new toy," he says. Matrix KVMs may be overkill for typical small to midsized enterprises, he says.

For companies that are not controlling a large number of distributed devices, Femrite says, KVM over IP may not be necessary and could be cost prohibitive. An item worth considering, he says, is built-in remote access ability for connecting the KVM to the network and managing devices from anywhere. McCurry says remote access is particularly important because 24-hour onsite tech support is often cost-prohibitive. "Having the ability to open a browser and remotely access, review, reboot, or update a server without traveling back to the office is a great method of keeping your network healthy and employees happy," he says.

Support Yourself Well

McCurry considers acquiring sound, objective, experienced technical advice from a leading provider of KVM solutions as the most important aspect of buying KVMs. Also important, he says, is getting the best solution for the applications you need and within your budget, not being "sold the spiffed product of the week or month." Also ensure you get real after-purchase support at no additional charge.

Factor In Compatibility

Compatibility must be accounted for, Femrite says. Determine the number of devices you want to connect, hardware devices you'll connect to it (mouse, keyboard, monitor), and the connection types (USB, PS/2) you need. Also factor in future additions or purchase a KVM that can daisy chain or cascade to avoid having stranded assets you outgrow, he says. McCurry suggest looking two to three years forward when planning for network and systems growth. "Many KVM switching systems can easily be expanded by cascading to another KVM switch," he says. Femrite says a KVM should also be compatible with computer/server OSes and the interface of the monitor you'll connect to (DVI or VGA).

Some KVMs integrate the switch and a slide-out monitor/keyboard combo in an all-in-one unit that only uses 1U of rack space, a convenient option when mounting a KVM in a rack. Also determine the maximum distance you need to connect devices to the KVM. "If further than approximately 25 feet, you should opt for a CAT5 cable vs. the standard KVM cable kit," Femrite says.

McCurry says Black Box doesn't typically encounter client compatibility issues with OSes, but custom software and drivers installed on a target computer may be incompatible. "IT should be aware of the supported USB drivers available on the OS itself when working with a USB-supported KVM. . . . The ultimate goal is to have a KVM switch that will not cause IT headaches when it comes to the target computers' installed software," he says. ▣

KEY TERMS

KVM sharing.
Enables multiple users to access the same KVM.

Remote access.
Enables connecting KVM to a network to provide management of devices from a browser.

BUYERS' CHECKLIST

✔ How many servers or CPUs will you manage?

✔ How many concurrent managers will need access to servers/CPUs?

✔ Do you need remote IP access?

✔ What connections and video types must the KVM support?

✔ Is standard USB keyboard and mouse support sufficient or do you require support for nonstandard USB devices?

Scalable & Expandable Storage

Aberdeen AberSAN ZXP & AberNAS N10L Series
Are Ideal For Traditional & Virtualized Environments

ABERDEEN HAS BEEN PROVIDING high-capacity, high-speed storage solutions for data centers for many years. And from the beginning, the company has put a strong focus on the customer experience with each one of its products. "All Aberdeen systems are fully customizable," says Larry Aguilar, marketing manager at Aberdeen. "Aberdeen does not carry prebuilt systems. Each system is tailor-made based on each customer's requirements and specifications."

Aberdeen's AberSAN ZXP Expandable ZFS SAN Storage Subsystem and AberNAS N10L Series are no different. They provide flexible and scalable storage that is designed to grow alongside a company and provide the high level of performance needed for many years to come.

Virtually Unlimited Storage

Perhaps the biggest selling point of Aberdeen's AberSAN ZXP systems is that they have virtually unlimited storage. The AberSAN ZXP is built as a 128-bit system and uses a ZFS file system. This combination lets you produce unlimited snapshots for quick data restoration as well as unlimited file sizes. For management, Aberdeen includes a Web-based GUI to help manage and configure the hard drive array(s).

Aberdeen uses its ZFS-based file system to protect data and support virtualization, if necessary. Because the AberSAN ZXP provides unlimited storage, it's capable of storing a large number of backups and system instances in case you need to restore your system due to a large-scale disaster. Aberdeen products use the ZFS file system to avoid silent data corruption, so you can be sure that every save is stored correctly and will be available when you need it. You can leverage the ZFS file system to use thin provisioning and I/O pooling. Plus, Aberdeen's solutions are designed to work specifically with VMware environments as well as other virtualization offerings.

The AberSAN ZXP is perfect for cloud environments. Not only does it provide a large amount of storage, it is also easily expandable from a smaller starting size up to a large-scale cloud infrastructure machine. You can choose from a 19-inch rackmount solution with a 2U Head Unit, 3U JBOD Expansion, or 4U JBOD Expansion, which provide depths of 17.7, 25.5, or 27.5 inches, respectively. Each system comes with different power supplies and storage options and up to 192GB of DDR3 memory. The AberSAN ZXP can handle any storage-related needs you currently have while leaving enough room for the needs you haven't even thought of.

Designed For Businesses Of All Sizes

Aberdeen's solutions are designed to work for all companies, from the smallest businesses to the largest enterprises. That's why the AberNAS N10L Series of products are Linux-based servers that are available in 2.4TB, 4TB, 8TB, and 12TB capacities and can be built to provide RAID 0, 1, 5, 6, 10, 50, and 60 environments depending on the level of storage you need. The AberNAS N10L Series also features an expandable SAS port, so you can connect Aberdeen XDAS (direct attached storage) units for additional storage space when you need it. And because these solutions use an open storage platform, they can be easily configured and reconfigured to meet any data center's specific needs.

AberSAN ZXP

The AberNAS N10L Series is also ready for virtualization and the cloud, because each 32-bit model is VMware certified, and 64-bit certification is pending. You can start off with any of the base models for simpler virtualized environments and then expand your storage as you expand your cloud-based projects.

In addition to the storage space, 6GB to 24GB of DDR3 memory, and VMware certification, Aberdeen's AberNAS N10L Series is built to work with some of Intel's newest technologies, including Intel's QuickPath Technology and a built-in memory controller, to provide the highest level of performance and speed. **P**

ABERDEEN
ABERSAN ZXP &
ABERNAS N10L SERIES

(800) 500-9526
www.aberdeeninc.com

Aberdeen's scalable storage solutions feature the Intel® Xeon® Processor and take advantage of ZFS-based file management for virtually unlimited storage and ensure that these products will grow alongside your company to provide the highest level of performance.

Data Center Infrastructure

AlphaPoint AssetCentral

AlphaPoint's AssetCentral data center management solution helps IT visually track and manage hardware assets within the enterprise, providing a more accurate method of tracking assets and changes vs. traditional spreadsheets or generic drawing tools. AssetCentral LITE is AlphaPoint's new entry-level solution designed to get companies quickly started with IT asset management and DCIM. The AssetCentral LITE Edition takes the risk out of manual processes and spreadsheets. The AssetCentral LITE Edition is free up to 100 devices and available for immediate download and deployment.

- Rack Elevations displays actual images of assets within a rack
- View the location of racks and assets from high-level worldview
- Generate reports based on various metrics, such as power consumption or financial metrics
- Obtain accurate counts of inventory for auditing
- Web-based solution can be used by various devices, including servers, laptops, and tablets

Best For: Any size data center within an enterprise or as a backbone for hosting providers.

Contact: (941) 896-7848 | www.alphapointtechnology.com

Packet Power DCIM Solution

Packet Power provides a whole-system DCIM solution via its easy-to-implement wireless data center power and environmental monitoring hardware and software. Data centers can use the components as a complete DCIM solution or to exchange data with other applications via SNMP.

- Tracks detailed power usage at the device, rack, and distribution panel on circuits ranging from 10 to 2,000 amps
- Captures detailed temperature data at up to six points per cabinet
- Monitors relative humidity, differential pressure, and dry contact devices
- Robust, secure, self-configuring wireless network enables easy installation

Best For: Data centers seeking easy, affordable, and advanced data center monitoring.

Contact: (877) 560-8770 | www.packetpower.com

Geist DCiM Environet

Geist DCiM's Environet features an intuitive UI that provides a visual representation of data that's collected, enabling users to instantly recognize problem areas. The UI requires less time to learn so users can spend more time managing the data center. Environet is completely vendor-neutral, and more than 250 implementations are currently installed worldwide.

- Communicates with any equipment using SNMP, Modbus, BACnet, Hardwired I/O, LonWorks, and Niagara to enable compatibility with many third-party proprietary systems
- View highs and lows, problem areas, consumption rates, and more
- Power one-line and capacity-planning features enable viewing how energy is used and how to disperse it more accurately
- Uncover stranded capacity and reduce energy usage, plan for future expansions, and effectively extend a facility's useful life

Best For: Companies of any size, from those with a single server room to those with multiple locations.

Price: Based on the number of equipment and points managed

Contact: (877) 449-4150 | www.geistglobal.com

No Limits Software RaMP
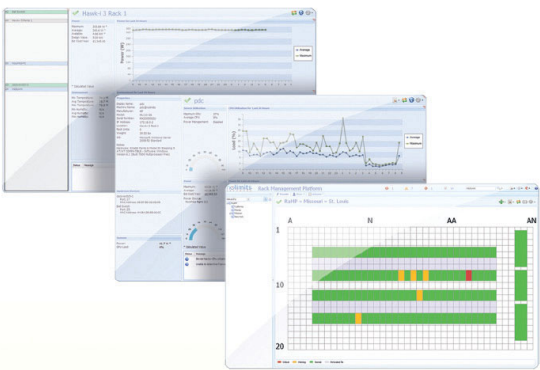
No Limits Software's RaMP solution provides a consolidated view of IT and facilities, enabling users to view the data center as a whole rather than as a sum of individual views. RaMP auto-discovers data related to equipment and provides power, cooling, and environmental monitoring for all critical equipment, as well as automatically tracks all changes to devices.

- Automated asset management and change monitoring
- Real-time monitoring
- Enhanced capacity planning
- Server monitoring
- Web and handheld interfaces
- Software license management

Best For: Enterprise-level asset and change management and data center monitoring.

Price: Tiered pricing based on number of managed devices

Contact: (314) 469-2766 | www.nolimitssoftware.com

Information Systems Associates DataCenter*Easy*®
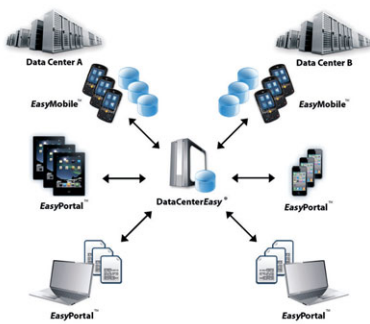
Information Systems Associates' DataCenter*Easy*® provides Mobile Data Center Asset Management abilities on handheld devices, including accessing asset data from anywhere at any time. IT can reduce time and energy needed to manage data center changes and perform asset inventories while improving asset management data accuracy.

- Includes DataCenter*Easy*® (server), *Easy*Portal (Web clients), and *Easy*Mobile® (handhelds) components
- Purpose-built for data centers
- Client server platform
- Multisite view and management abilities
- Wireless synchronization

Best For: Data centers of all sizes.

Contact: (702) 577-3404 | www.datacentereasy.com

Premier Solutions DCIM Solutions

Premier Solutions helps customers build a DCIM program tailored to specific management and monitoring needs, whether the operation covers 1,000 square feet in a small office or 1 million square feet spread across multiple facilities. The company has successfully completed more than 45 physical infrastructure build-outs, provided optimization services, and managed server access for more than 50 million square feet of space.

- Represents leading providers of DCIM software
- Creates DCIM platform through integration of operational and environmental efficiencies
- Helps configure automated historical data-measuring processes and automated processes for best managing data centers

Best For: Data centers of any size seeking a tailor-made DCIM solution.

Contact: (714) 557-5800 | www.premiersolutionsco.com/dcim

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

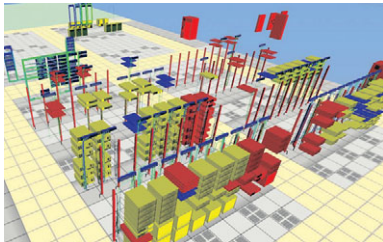# Management Solutions

Cormant CableSolve

CableSolve from Cormant is a mobile IT infrastructure management solution that consolidates all data concerning an enterprise's IT assets and related connectivity, including power and data connectivity and asset location and status information. CableSolve tracks assets wherever they're located to provide complete portability of all records and ensure that data is always up-to-date.

- Consolidates existing records (spreadsheets, drawings, etc.) into a central repository to produce one source of trusted data concerning physical layers of IT infrastructure
- Vendor-neutral, enabling support for current and future equipment
- Fully portable/mobile platform is accessible offline or via mobile devices
- Robust scripting module enables reading/writing to network-accessible equipment

Best For: Medium-sized to large organizations with relatively large-scale IT infrastructure.

Contact: (805) 747-4178 | www.cormant.com

iTRACS Converged Physical Infrastructure Management™

iTRACS' open, enterprise-class DCIM solutions drive efficiency and continuous business value in the data center. The company's Converged Physical Infrastructure Management™ software portfolio is deployed in complex physical infrastructures worldwide.

- Information-rich decision support platform with deep-dive business analytics and intuitive understanding of interconnectivity
- Interactive 3D Visualization provides a single point of management via an interactive, navigable 3D environment enabling command and control over entire IT ecosystem
- What-if scenarios with predictive 3D modeling validate the impact of moves, adds, and changes before you make them
- iTRACS PowerEye™ provides best-practices strategy for optimizing energy efficiency and power management
- iTRACS Customer Value Lifecycle™ – proven deployment methodology for generating continuous business value from your DCIM investment

Best For: Data centers in which efficiency is paramount.

Contact: (480) 557-8000 | www.itracs.com

Modius® OpenData

OpenData software by Modius® helps resolve data center problems that impact business continuity and energy efficiency. OpenData provides real-time fault and performance monitoring of the extended power and cooling chains, as well as the decision support that makes it possible to optimize system performance against IT demands. By continuously monitoring and analyzing comprehensive, granular, time-series data, OpenData makes troubleshooting easier and forecasting capacity requirements more reliable, thereby reducing operational costs and risks.

- Operational intelligence: the real-time power consumption, system performance, and environmental changes presented in dashboards and reports
- Multi-site views through single pane of glass
- Vendor-neutral and scalable across devices and locations
- Unified alarm monitoring and management
- No coding required to add new devices or deploy across multiple sites

Best For: Ideal for medium- and large-sized data centers and critical facilities with hundreds or thousands of systems spanning multiple sites.

Price: Simplified pricing based on the device type

Contact: (888) 323-0066 | www.modius.com

PRODUCT SPOTLIGHT

BUYING TIPS:

Data Center Infrastructure Management

INCREASINGLY, data center managers are eyeing DCIM (data center infrastructure management) solutions for the numerous benefits they can afford by providing a holistic view of data center and facilities infrastructures. Solutions enable IT to view real-time power and temperature usage data on a granular level and provide monitoring, management, automation, optimization, and capacity and budget planning capabilities, all of which lead to the streamlining of operations and improving energy consumption and overall efficiency. Here are some things to look for when purchasing DCIM solutions.

Gauge what you need. According to Steve VanTassel, CEO of Packet Power (www.packetpower.com), the DCIM space is currently broad and evolving. Some platform-structured solutions provide a full scope of service, while numerous "point" providers offer "more limited function but may also be deeper in capability within their niche or significantly less expensive," he says. When comparing solutions, consider what your greatest need is and your ability to fully use the platform's tools. For example, determine whether you have the resources in place to address issues the DCIM solution uncovers and change the facility or operating procedures to enable improvements. "Most companies have limited resources and will need to begin with one or two aspects of DCIM," VanTassel says. If choosing a point solution, he says, ensure that it supports such standards as SNMP to improve the odds it will work with other vendors' systems you might add in the future.

Seek an easy migration. Rather than recreating the wheel, says Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; www.rackmount solutions.net), seek out a DCIM solution that supports easily migrating existing data to the new system. For example, if you're maintaining multiple spreadsheets, CAD drawings, and other diagrams, he says, "migrating that information into the DCIM solution easily will be a lifesaver. Automation is key." The solution should allow managers to start small and work up to added levels of sophistication in phases, he says, adding that "Flexibility can breed complexity, and while a full-featured DCIM solution can seem complicated, getting started doesn't have to be." A modular solution that enables initially buying what's needed and layering in additional features gradually is a nice benefit, he says.

Must-haves. According to Willie Bloomstein, market strategist at iTRACS (www.itracs.com), must-have DCIM features include a highly scalable solution "with an open, heterogeneous platform architecture that parallels the approach used for the logical layer—a platform that integrates IT with facilities/building systems management and democratizes information across multiple constituents." The solution should also support devising what-if scenarios. "This includes predictive modeling of what-if scenarios so you can see the future and plan for it before it happens; 'trial and error' models that test and confirm the impact that changes to the physical layer have on your logical layer, where the heart of the business lies; and the ability to do all of this testing and predictive modeling of change not in the lab or on the floor, but in the safety of DCIM software with no danger to the live environment," Bloomstein says. Another must-have feature is automation. "You need a DCIM decision-support platform with the brains and the brawn to automate workflows and accelerate—and simplify—decision-making across a full range of DCIM tasks," Bloomstein says. ℙ

BUYERS' CHECKLIST

✔ **Obtain standard support.** Most companies have tools in place that a DCIM system will replace, such as manuals and spreadsheets, says Packet Power CEO Steve VanTassel (www.packetpower.com). A vendor-neutral DCIM solution with standards support, he says, will lessen the odds of having to undergo another migration in the future.

✔ **Plan for the future.** A DCIM solution should support capacity and optimization planning, offering tools that help "determine future requirements for power, cooling, floor space, rack space, and contingency planning," says Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net).

✔ **Factor in implementation costs.** When choosing a solution, factor in costs related to implementation planning and providing network connectivity to monitoring devices, VanTassel says.

✔ **Don't mistake monitoring power for managing power.** "Monitoring energy usage at the device level gives you mere data—a single-dimensional perspective on a specific device at a specific point in time, without context," says Willie Bloomstein, market strategist at iTRACS (www.itracs.com), who explains that this fragmented data is of little use because it's without context. Conversely, he says, "managing energy usage across the entire power chain is where the true gains in energy efficiency can be made."

KEY TERMS

Point solutions.
Many DCIM vendors offer only one or two DCIM components, or points, rather than an entire suite of DCIM tools.

Simple tools.
Spreadsheets and diagrams are examples of simple tools that managers have historically used to monitor data center assets. Some DCIM solutions can import data from these tools and automatically perform an initial discovery of asset-related data.

Equipment Recycling & Disposal

DMD Systems Recovery

DMD Systems Recovery works to minimize your risk and maximize your payback, so you'll get a solid return on investment without worrying about the possibilities of regulatory fines, bad publicity, or litigation from data theft on hard drives that weren't properly sanitized. DMD Systems Recovery offers data deinstallation, packaging, logistics, data destruction, recycling, and remarketing.

- Removal and packaging services to preserve value
- Increased ROI through direct purchase or profit sharing
- DoD 5220.22-M-compliant data wipe and NAID-compliant destruction
- Reduced risk through certificates of destruction and compliance and transfer of ownership

Best For: Data centers, call centers, and companies with large centralized operations.

Contact: (877) 777-0651 | www.dmdsystems.com

WeBuyUsedTape.net
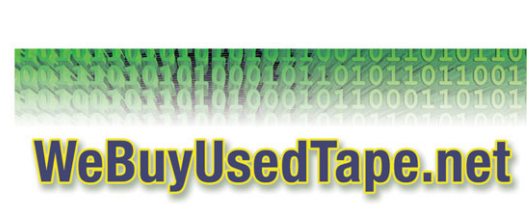
WeBuyUsedTape.net pays top dollar for your new and used tapes. WeBuyUsedTape has been in the business of purchasing new, used, excess, and surplus magnetic media for more than 35 years. It uses regulation-approved, secure data eradication processes and environmentally friendly disposal programs to give organizations a safe and economic incentive for recycling used media. No-obligation, confidential quotes on your tape media are available at any time. Onsite data destruction available.

- Simple process: Submit your list of media; receive a confidential, no-obligation offer within 24 hours; and ship your media to us.
- Processes meet HIPAA, Gramm-Leach-Bliley, PCI, Sarbanes-Oxley, and other regulation requirements
- Data Destruction Certificates document your transaction and provide proof of complying with recycling and data eradication processes

Best For: Enterprises needing a secure way to dispose of new, used, excess, and surplus magnetic media.

Contact: (800) 821-1782 | www.WeBuyUsedTape.net

Bass Computers, Inc.

With over 21 years experience in the technology industry, Bass Computers is a leader in the IT and recycling markets. We strive to generate minimum waste and maximize your return on investment. Focused on customer satisfaction, our experts specialize in designing and implementing B2B solutions that are fiscally and environmentally responsible. Bass Computers offers a variety of services, including equipment pick-up, data destruction, recycling, and refurbishing. To ensure maximum data protection, both on-site and off-site data destruction services are available. Additionally, as a technology provider, we can refurbish and resell electronic equipment. We offer our customers up to 25% of the market value back as either a check or a credit towards the purchase of new technology.

- Microsoft Authorized Refurbisher
- Secure transport of IT equipment in GPS-equipped trucks
- On-site and Off-site hard drive and media shredding
- Certificates of Recycling and Data Destruction provided
- 100% No Landfill Policy

Best For: Corporations, Education, Health Care Institutions, and Government Agencies in need of secure, environment friendly IT asset disposal and data destruction.

Contact: (800) 789-3012 ext.6762
www.basscomputerrecycling.com

Techno Rescue

TechnoRescue is a Veteran-Owned, full life-cycle Green I.T. Company. We've serviced thousands of clients with Computer Electronics Recycling, e-waste disposal and Data Destruction, all with an emphasis on helping and protecting the environment. The company is registered as a Large Quantity Handler of Universal Waste with the Environmental Protection Agency (EPA) and is subject to state inspections and compliance reviews. We rigorously adhere to federal, state and municipal guidelines outlining the proper disposal of electronic waste. TechnoRescue is built on excellence, integrity and hard work and will continue to grow and build our company and relationships on the same values.

Best For: Businesses, organizations, enterprises, government who are looking for Professional Computer Electronics Recycling and Certified Data Destruction services.

Contact: (303) 482-2207 | www.technorescue.com

CloudBlue

CloudBlue offers several e-waste management services for enterprises and consumers. Both onsite and offsite data eradication services can be provided using nationally and internationally recognized standards. Services available include refurbishment and repair, fair market value assessment, remarketing strategies, warranty support, repair services, and much more. Additionally, a dedicated program manager will assist with every operation.

- A certified e-Stewards recycler
- ISO 14001:2004 certified
- Onsite services available to help manage, de-install, or redeploy IT assets
- Qualified CloudBlue technicians available on location to ensure your assets and data remain secure
- High-level repair services available
- Safe and secure recycling methods meeting the highest of industry standards

Best For: Enterprises looking for a certified service provider to assist with the recycling, repair, or refurbishing of IT assets.

Contact: (866) 437-4258 | www.cloudblue.com

Data-Destruction.com

Data-Destruction.com specializes in electronic media sanitization and shredding services. Expert and professional staff will securely wipe your devices in our professional lab or physically shred them in our mobile shredding vehicle. Data Destruction makes it easy and safe for drop-off service, shipping, or onsite jobs with the Mobile Shredding Vehicle. Don't be a victim of identity theft. Protect your data by disposing of the media properly.

- Onsite mobile digital media and hard drive shredding
- NIST certified wiping
- DoD certified destruction
- Secure "ship and destroy" service
- Compliant with all industry requirements
- Chain of custody upon request
- Video recording of destruction available
- Certificate of destruction
- E-Waste recycling available

Best For: Businesses, Healthcare Industry, Government Agencies, and all individuals needing secure disposal of "end of life" digital media and data.

Contact: (888) 979-DATA (3282)
www.data-destruction.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

5R Processors

5R Processors specializes in recycling and repurposing your enterprise's unwanted electronics. Services include computer and electronics recycling (including metal recycling), refurbishing, and waste processing of scrap material, all helping to reduce the negative impact of e-waste.

- Closed-loop recycling used to create new products from destroyed and shredded equipment
- Environmentally aware recycling with accountability for all hazardous waste, minimizing contamination
- Accepts wide variety of equipment and components for recycling, including computers, mechanical equipment, utility and power equipment, various metals, and more
- Meets R2 and ISO 14001 certifications

Best For: Enterprises looking to recycle or refurbish their end-of-life equipment.

Contact: (715) 532-2050 | www.5rprocessors.com

Intechra

Intechra focuses on data security and protecting clients from liability by leveraging technology, processes, and customized solutions into the right mix of end-of-life asset management and disposal services. Intechra's IT asset disposition offers waste-free, worry-free service, covering all steps of the process, including logistics, data security, and the demanufacturing and recycling of materials.

- Ultimate data security protection
- Environmentally compliant disposal
- Comprehensive remarketing, redeployment, and donation strategies
- Full indemnity against risk

Best For: Enterprise or global organizations needing a secure, compliant global IT asset disposal strategy.

Contact: (800) 393-7627 | intechra.com

Reclamere

Reclamere's experienced team works with you to develop a data security plan tailored to meet your data destruction, data recovery, and IT asset management needs. Reclamere's experts can also help you execute your legal responsibilities for each phase of the IT equipment life cycle, which helps protect your company, employees, and clients from data breaches.

- Certified data destruction
- IT asset management for safe and secure preparation of electronic equipment
- IT audit and assessment to evaluate a company's risk level
- E-discovery and litigation support to recover information from hard drives for legal procedures

Best For: Enterprises most concerned about the security of outdated IT assets.

Contact: (814) 684-5505 | www.reclamere.com

U.S. Micro

U.S. Micro offers data sanitization services and demanufacturing capabilities to companies that need to retire IT assets securely and responsibly. The company deploys its own technicians, rather than subcontractors, to destroy data onsite at customer locations, every time, anywhere in the United States. IT assets are tracked every step of the way by an industry-unique proprietary electronic tracking technology called Enertia. Using next-generation technology, U.S. Micro is able to demanufacture any IT asset that cannot be sold.

- Data sanitization occurs at the customer's location
- Enertia safely tracks and certifies when all devices are data-free
- U.S. Micro technicians, not sub-contractors, handle every step of the process
- All assets are refurbished and resold or recycled; demanufacturing occurs at U.S. Micro's next-generation facility and nothing ends up in landfills

Best For: Enterprises in need of secure, environmentally responsible IT asset disposition services.

Contact: (888) 876-4276 | www.usmicrocorp.com

PRODUCT SPOTLIGHT

BUYING TIPS:

Equipment Recycling & Disposal

THERE COMES THE TIME WHEN enterprise equipment becomes outdated, needs to be replaced, or is simply no longer of use. Such situations require getting rid of the old to make room for the new. One viable option for dealing with old equipment is reusing it in another capacity, such as repurposing a once high-end server for an application that doesn't demand mission-critical performance. Another option is using a vendor that specializes in refurbishing, recycling, and disposing of old equipment.

In addition to handling equipment in an environmentally responsible manner, a vendor can help ensure you abide by privacy and compliancy regulations. Plus, there's the potential an enterprise can recoup some of its expenses if the vendor can resell the old equipment. When it comes time for you to find an equipment recycling and disposal vendor, the following advice can help.

Check for qualifications. Selecting a trustworthy vendor is a must. For example, Norm Hutton, head of sales and acquisitions at WeBuyUsedTape.net (800/821-1782; www.webuyusedtape.net), says his company purchases more than 60,000 surplus new and used data tapes monthly, preventing more than 40,000 pounds of material from entering landfills. While 100% of the tapes are recycled, he says, most are recycled through reuse, which requires securely eradicating all data and testing and certifying the tapes before reselling them.

Hutton says to be sure a vendor is reputable and stable. Has the vendor been around a while? Can it provide references within your industry? Does it answer all questions and concerns? Will it provide documentation up front? Is the vendor compliant with policies and government regulations pertaining to your industry?

Morris Scott, CEO of DMD Systems Recovery (877/777-0651; www.dmd systems.com), says certifications to check for include ISO 9001, ISO 14001, and R2, which "are the most common and have widest global recognition and acceptance." Check that the vendor engages in EPA-compliant recycling. A vendor with reuse programs for equipment "can help smaller businesses and schools and is much easier on the environment," Scott says.

Follow the trail. When comparing vendors, know that there's a difference between providers of recycling and disposal services and brokers. Hutton says, "Most companies represent themselves as the actual recycler or disposal company," but many are brokers that only sell products to others without touching the products. This increases security risks and lowers the return on your surplus assets. By using a vendor that actually provides the service, Hutton says, you can expect high return, not just another added layer of costs.

Ask questions. Ask prospective vendors if you can physically inspect their facilities, what security and surveillance they use, how they can assist with ROI for current projects, and what documentation processes they use.

Be sure to find out precise details on how equipment is picked up and handled, who pays for shipping and transport, how equipment is processed and how long it takes, where equipment ultimately winds up (recycled, refurbished, or resold), when you will get paid, and if the vendor can assist in other ways such as providing new products or offering credit from old equipment for obtaining new equipment. You also should consider checking what current accounts the vendor has, if it uses downstream vendors and who they are, and what liability and indemnification insurance it provides. ▣

KEY TERMS

Data wiping.
A process used for compliancy and privacy reasons in which data is entirely destroyed or erased from equipment such as hard drives.

Refurbished for reuse.
Old equipment that has been restored to be resold or donated for continued use rather than recycling individual components.

BUYERS' CHECKLIST

✔ **Homework.** Compile a list of equipment you no longer need, determine its resale value, what businesses might purchase the equipment, and how the resale value can help fund new purchases.

✔ **Qualifications.** Determine how long the prospective vendor has been in business, what its reputation is in the industry, and what compliancy and certification measures it operates by and has achieved.

✔ **Broker or provider.** Determine if the vendor actually provides recycling and disposal services or is just a broker of such services.

✔ **Process.** Clarify the methods the vendor uses to process equipment, including who handles equipment, where it goes, how long processing takes, and what documentation you can expect.

CASE STUDY

Know Your Network

College Uses FlowTraq To Quickly Identify & Fix Network Performance & Security Issues

AS A MEMBER OF THE Security & Infrastructure Group at Georgian College, Randy Baker discovered the shortcomings of the college's existing network management tool when trying to investigate some suspicious network activity.

"I started looking for a replacement solution that could not only function as a performance tool, but also as a security tool. I also wanted a solution that would provide quick and easy access to network flow data and represent that data in one report," Baker says.

His search led him to FlowTraq, which uses network flow records to provide integrated monitoring and forensic analysis capabilities. Baker says FlowTraq allows for greater insight into network behavior, so he can easily spot performance trends before they become performance issues.

What ultimately sold Baker on FlowTraq was the quality and usefulness of the software as well as the responsiveness of the technical support team. "FlowTraq also offers a price point that I felt management would accept," Baker says.

FlowTraq reduced the amount of time for working with the flows tool on regular daily tasks from one hour down to 10 minutes. "The ability to generate reports that clearly represent the information we need using less IT-resource time played a key role in our overall cost justification,"

Baker says. FlowTraq's support for IPv6 was also a big selling point.

More than 99.9% of security events are failed attempts reported in log files, but FlowTraq easily gives Georgian College the ability to audit random events to identify all servers an attacker attempts to breach. "We are able to compare the traffic patterns of an attack on the various servers and have a level of assurance that we are secure when the patterns remain very similar," Baker says. "The IT staff can also see all connections to a specific server based on the country associated with each IP address."

In summarizing the overall value of FlowTraq, Baker says, "Our ability to seek out undetected threats and investigate issues has been significantly increased, and FlowTraq has significantly reduced the time required to perform these tasks." P

ProQSys FlowTraq

A full-fidelity network flow analyzer that lets IT professionals perform many network monitoring, forensic, and security tasks with just one tool.

(603) 727-4477 | www.flowtraq.com

FLOWTRAQ

Colocation Providers

360 Technology Center Solutions

360TCS, LLC is a premium provider of enterprise-level colocation and data center services. Strategically located in the Chicago suburbs, the 360TCS data center features an ultra-efficient, environmentally friendly Tier III design providing our clients with 100% uptime. As an SSAE-16 Type II audited facility, the 360TCS data center provides a physically secure, fully redundant environment, ideal for supporting mission-critical data and hardware deployments.

- Power densities in excess of 32kW per cabinet
- 24/7 onsite security and surveillance
- Reliable connectivity with access to multiple carriers
- 2N redundant, energy-efficient chilled water cooling system
- Cost-effective, customizable solutions
- Multiple levels of support and remote hands services available

Best For: Enterprises looking to add a level of redundancy to their IT infrastructure. Ideal for high density deployments of blade server technology, power-hungry storage arrays, and high performance computing clusters.

Contact: (888) 313-1306 | www.360tcs.com

MASSIVE NETWORKS

MASSIVE NETWORKS facilities, located in Englewood, CO, provides a secure, reliable and scalable foundation centrally located in the United States and 35 ms coast to coast latency. Massive Networks facilities are specifically designed to provide a state-of-the-art Data Center Colocation, Internet / Bandwidth Services, Cloud Computing Services and VoIP for your mission-critical infrastructure and applications demands. MASSIVE NETWORKS provides a scalable business in a box and the ability to provide high-density co-lo solutions on demand. Private networks in the massive cloud = security.

- Power and cooling densities exceed 24KW per cabinet
- SSA-16 / PCI / HIPAA Compliant
- Private Network Transport (PNT)
- Data center blended bandwidth to your Location

Best For: Companies in need of the following: Hosted PBX / SIP trunks, Cloud Computing Services, Metro Ethernet, Colocation, Hosting, Internet, Disaster Recovery, Backup, Antivirus

Contact: (877) 441-0713 or (303) 800-1300
www.massivenetworks.net

Starpoint Digital

Located 30 miles outside of Chicago, the Starpoint Digital data center offers colocation services geared toward medium to large-sized businesses. Service is fast, secure, and reliable, with both managed and unmanaged colocation offerings. Additional features include both high-level and low-level tech support, IP addresses, DNS hosting, device monitoring, and more.

- Shared and private colocation
- VoIP cloud PBX
- Cloud server and desktops
- T1 and fiber dedicated access
- Managed backup, firewall, and SQL

Best For: Enterprises looking for inexpensive shared rack space with a variety of added features.

Contact: (877) 968-7638 | www.mystarpoint.com

NetSource Communications

NetSource Communications, a hosting solutions provider located just outside of Chicago, offers colocation services with the rack space, power, bandwidth, and security for any enterprise. NetSource offers advanced managed services with a colocation agreement, including firewalls and data backups. Experienced technicians are on hand for support and to help customize a server architecture for any particular need.

- N+1 redundancy built into the data center infrastructure
- Variety of colocation and managed service packages available
- Strict security with 24/7/365 video surveillance
- Unique options for different sizing or pricing needs
- Low latency bandwidth, with almost unlimited bandwidth available
- Flexibility in power needs

Best For: Enterprises in need of a colocation solution with a variety of sizing and pricing options.

Contact: (866) 778-1212 | www.ntsource.com

OCOSA Communications

OCOSA Communications is a family owned and operated facilities-based provider headquartered in Tulsa, Okla. From hosting to connectivity and data center to IT consulting, OCOSA can tailor a solution to fit your needs. OCOSA understands the small business and specifically the cycle of business. For almost a decade, OCOSA has been tailoring solutions for businesses in almost every market vertical. Upgrade to OCOSA and let them work for you.

- Shared and dedicated hosting
- Shared and private cloud hosting
- Colocation (single servers, half to full cabinets, and custom rooms)
- Metro Ethernet, dedicated Internet access, and MPLS connectivity
- IT consulting and support
- Online backup and disaster recovery

Best For: SMBs wanting a hosting solution specifically tailored to their organization's needs.

Contact: (866) 93-OCOSA | www.ocosa.com

Latisys

Latisys delivers end-to-end IT Infrastructure Outsourcing solutions to help businesses focus on growth and achieve an optimal return on their investment in IaaS:

- Secure, redundant and highly available Tier III data center footprint covering all four US time zones
- High-Density deployment of power and cooling to maximize efficiency and scalability
- Far greater utilization of data center square footage than most competitors in each market
- Carrier-neutral colocation facilities that are compliant with SOC 2 Type II and SOC 3 Audit Reports
- Full suite of Managed Services
- Robust Managed Hosting &Virtualization Platform
- Secure and Scalable Enterprise Cloud Solutions

Best For: Enterprises, government agencies and service providers that are looking for an innovative approach to solution design and service delivery. Latisys is a growth partner that collaborates with businesses for strategic, rapid time-to-value solution design and then provides expertise with prompt, professional service delivery of end-to-end IaaS solutions.

Contact: (866) 956-9594 | www.latisys.com/processor

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

FORTRUST

FORTRUST is a Premium Data Center Services Company delivering high-availability and high density enterprise colocation services to the business community. The FORTRUST Data Center is progressively designed and precisely managed to preserve business continuity for its customers seeking reliability, risk mitigation, business value, and customer service to strengthen their Information Technology environments.

- 224,000-square-foot facility located in Denver and additionally within the IO Arizona and New Jersey data centers
- Highly reliable critical systems infrastructure featuring 2N UPS distribution
- Layered 24/7 onsite security, Network Operations Center, and customer support staff
- Carrier-neutral connectivity options from a variety of popular carriers
- SSAE 16 Service Organization Control "SOC" 1 Type 2, SOC 2 Type 2 and SOC 3 SysTrust Services Organization reporting colocation facility

Best For: Companies seeking colocation services with a focus on uptime and risk mitigation.

Contact: (866) 976-9379 | www.fortrustdatacenter.com

OnRamp HIPAA-Compliant Colocation

OnRamp's data center team of HIPAA implementation experts works with its data center customers to build a comprehensive, HIPAA-compliant hosting solution that addresses the confidentiality, availability, and integrity of electronic personal health information. OnRamp has developed a 3-step process, rooted in the company's highly secure managed hosting, cloud computing, and colocation services, to diagnose, assess, and manage any threats, vulnerabilities, and risks to your IT infrastructure.

- OnRamp HIPAA-Compliant Colocation services meet the rigorous HIPAA compliance standards
- OnRamp 3-step HIPAA Risk Management Process assists each customer in making appropriate decisions as to how to use OnRamp's services to effectively and efficiently protect the customer's sensitive patient data
- OnRamp features the highest levels of security, reliability, redundancy, technical expertise, and monitoring 24/7/365 for HIPAA-Compliant Colocation

Best For: Any company that works with healthcare data and patient records.

Contact: (888) 667-2660 | www.onr.com

Joe's Datacenter

Joe's Datacenter is located on the top floor of the Oak Tower building in downtown Kansas City, Mo. We selected this building because of its excellent variety of bandwidth providers and redundant power grids. Joe's Datacenter offers a variety of packages and options, ranging from a mid-tower server with five included IPs and 1.5TB of bandwidth to a full cabinet 42U with 24/7 support and onsite access.

- Unmetered bandwidth plans
- Detailed MRTG graphs on each server
- New colocation facility
- Fast, free 24/7 tech support

Best For: Small to midsized businesses looking for an affordable colocation option.

Price: Starts at $35/month for dedicated servers.

Contact: (877) 563-3282 | www.joesdatacenter.com

CoreXchange

From smaller-scale, affordable Half Cabinet options to Private Cages for customers needing more space, CoreXchange has the right size of solution to meet any enterprise's needs. All of CoreXchange's colocation solutions are available for purchase online and provide customizable power, bandwidth, and network features to ensure that you get the performance you need for a price you can afford.

- Power, bandwidth, and IP addresses
- Burstable or unmetered bandwidth options
- Bandwidth from 1Mbps to 1000Mbps (up to 10 Gig available)
- Selections for redundant power drops, network hand-offs, and cross-connects
- SSAE 16 SOC 1 Type II-compliant data centers
- 24/7/365 onsite NOC support with free remote hands and eyes services, including reboots

Best For: Any company looking for a reliable, secure colocation solution with always-available support.

Contact: (877) 271-7737 | www.corexchange.com

Green House Data

an economically responsible data center

Green House Data is an enterprise class colocation facility delivering state of the art services to businesses of all sizes. Our customers rest assured that their critical applications are always available in our N+1 redundant, highly secure facility. Our experienced employees are always happy to assist with any infrastructure needs. Powered entirely by renewable wind power, our energy efficiency is 40% better than typical data centers. We pass this power savings to our clients to offer highly competitive rates on all of our services.

- Cloud hosting, managed hosting, and disaster recovery also available
- 100% service level agreements
- 24/7/365 network monitoring, support, and access
- 10Gbps to 40Gbps point to point and Internet access available
- SSAE 16, Type II Compliant

Best For: Video and digital imagery companies that are looking for a reliable, highly available colocation facility that provides a sustainable business model at affordable prices.

Contact: (866) 995-3282 | www.greenhousedata.com

Hostway

Hostway is a colocation provider with data centers located in the United States and Canada. Hostway's new hybrid solution blends colocation services with cloud services for a customized configuration for any enterprise's hosting needs. Organizations are able to leverage prior investments in infrastructure and utilize colocation for legacy applications that cannot be migrated to new servers. Hostway provides colocation with the ability to connect to either public or private clouds for disaster recovery, burst capacity, and other Web needs.

- Flexible pricing options with ability to shift contracted spend if needs change
- State-of-the-art security with 24/7 live monitoring and tech support
- Various sizes of cabinets available to fit any need
- Managed firewall, intrusion detection, load balancing, database administration, and more available

Best For: Enterprises wanting an experienced colocation provider with a proven track record to keep your data secure and available.

Contact: (866) 467-8929 | www.hostway.com

PRODUCT SPOTLIGHT

Compass Datacenters

Compass Datacenters builds and operates Truly Modular Data Centers providing dedicated customer solutions where they need them. Compass Datacenters' **patent pending** Truly Modular™ solution uses four standard modules to cost effectively deliver dedicated, hardened, Tier III certified*, LEED Gold data centers to businesses in the 98% of the country not covered by the data center industry. Through our innovative use of technology, and by leveraging our extensive customer and data center experience, we have designed a solution that removes the unnecessary complexities associated with data center design, construction and operations to provide you with an alternative that is easy to plan, implement, operate and grow.

Best For: Businesses requiring Tier III, LEED Gold Data Centers

Contact: (877) 289-7577 | www.compassdatacenters.com

StratITsphere

StratITsphere Data Center Solutions is a fully integrated infrastructure service provider. SDCS operates a state-of-the-art, Tier IV designed facility named StratITsphere Alpha ("Alpha"), 25 miles northwest of downtown Houston, in the city of Katy, Texas. StratITsphere Alpha provides a full suite of data center services and business continuity solutions to our customers. The Alpha facility is located outside the 500 year flood zone and off of any major thoroughfare. This data center is a newly designed, state of the art facility built with the most recently recognized best practices known within the data center world. All of the redundancy our customers require is built into the design of StratITsphere Alpha.

- Infrastructure Consulting
- Cloud Computing
- Co-Location
- Managed Services

Best For: Companies looking for "always-on" service, including 24x7 manned security presence, video surveillance, and 24x7 manned Operations Control Center.

Contact: (888) 316-4191 | www.stratITsphere.com

Cologix

Cologix is a network neutral interconnection and colocation company that provides scalable interconnection services and secure, reliable colocation services within the key carrier hotels in Dallas, Minneapolis, Montreal, Toronto, and Vancouver. Cologix provides broad connectivity through managed neutral Meet-Me-Rooms which drive network costs down while providing flexibility through low switching costs. Cologix offers more than 300 network choices in 11 prime interconnection locations and supports more than 550 customers.

Cologix solves for:
- Interconnection (financial, voice, IP peering, media, Ethernet)
- Enterprise core network hub
- Carrier PoP/peering
- Media hub/distribution
- Content delivery infrastructure
- Diversity and redundancy

Best For: Enterprises looking for a colocation provider that offers broad neutral connectivity choices through managed Meet-Me-Rooms and high touch, local customer support.
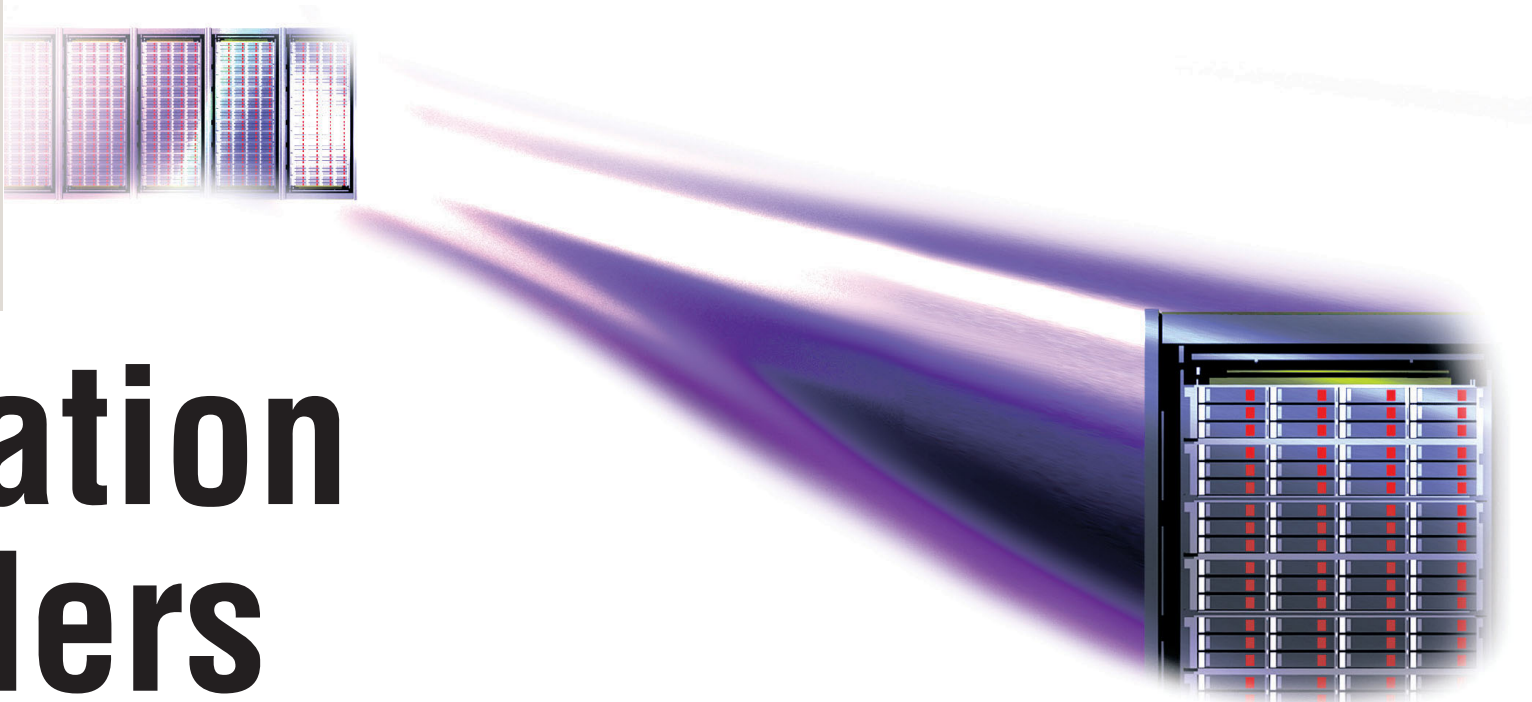
Contact: (855) COLOGIX | www.cologix.com

BUYING TIPS:

Colocation Providers

IF YOU'RE SEARCHING FOR WAYS to cut down on costs, consolidate your equipment, or set up a disaster recovery solution for your data center, then colocation might be the answer to your problems. But there's much more to the colocation buying process than simply pointing to a provider and signing an agreement.

"A data center or colocation service provider should serve as an essential extension of their customers' operations while providing value to the customer's business through reliability, risk mitigation, business value, and customer service," says Robert McClary, vice president of FORTRUST (www.fortrustdatacenter.com).

It's important to examine the purchasing decision from every possible angle and understand the true role of the colocation provider. We'll show you what to look for in a provider and how you can get the most out of colocation by making the right choices from the beginning.

Usage and location. The first thing you should consider when trying to select a colocation provider is how you want to use the facility and for what purpose. Some companies invest in colocation so they can cut down on internal data center and infrastructure costs while others hope to set up a safe solution for disaster recovery. Once you know how you intend to use equipment in your colocation environment, you can then find the best location.

"Many companies will look for data center and colocation service providers in their immediate area in order to be close to their equipment," McClary says. "However, it is becoming increasingly more common for companies to look outside their immediate area for a number of reasons, including geographic risk mitigation, cost of power, and latency."

Provider and facility reputation. Checking a colocation provider's past history is as important as making sure it's in a safe location, if not more so. Request customer referrals whenever possible and gather as much information as you can about the provider before you make your decision.

Robert Smith, CTO and director of IT at WAN Security (www.wansecurity .com), says that companies should be as thorough as possible. He recommends that the buyer "go onsite to a facility, personally check their power infrastructure, speak with the data center manager or maybe even the network engineer on duty, and review their maintenance policy." By doing your due diligence up front, you will ensure that you aren't stuck in a long-term contract with a less-than-stellar vendor.

Choose equipment wisely. After selecting a colocation provider and a facility, you should focus on the types of equipment you want to house there. It's important to keep in mind that the equipment you choose will have the largest effect on the costs of colocation.

"In many data centers or colocation facilities, power is the driving force that affects cost and pricing," says McClary. "The power and density requirements of the equipment that a company intends on colocating will normally dictate the cost.

Matching the business's needs to its data center or colocation strategy is key."

Room for growth and expansion. Although it's important to put a heavy focus on what your company needs now in terms of equipment and performance, it's also crucial to look to your company's potential future needs and ensure there is enough room for expansion years down the road. Instead of backing yourself into a corner, make sure your colocation provider's facility is flexible enough to support more or less equipment depending on whether you wish to expand or consolidate at a later date. P

BUYERS' CHECKLIST

✔ Who owns the colocation facility?

✔ What are your short- and long-term plans for the facility?

✔ What options are in place for potential company growth and expansion?

✔ How much power and space do you need?

✔ Does the facility offer 24/7/365 customer service?

KEY TERMS

Cabinets, cages, and suites.
Terms used to describe how much space a company needs for its colocation resources. Cabinets are for companies that only need a small amount of space; suites, vaults, or rooms are required for larger-scale colocation needs.

Geographic risk mitigation.
The practice of selecting a colocation provider and facility based on the location of its data center. For instance, choosing a data center located in a region with a calmer climate vs. one located in a region that's prone to hurricanes, earthquakes, or other natural disasters.

Overhead & Underfloor Cable

Rackmount Solutions Copper or Fiber Spools

Now there is an easy, affordable way to handle excess copper or fiber optic cables. Middle Atlantic's plastic cable spools provide network installers a Rackmount solution for securely controlling excess cable slack. These spools promote and keep the proper bend radius to prevent breaks and kinks. Available in three different depths to accept various cable densities, spools can be used horizontally or vertically.

- Easy, efficient way to preserve proper bend radius of fiber or copper cables
- Use with 2 post or 4 post, floor mounted or wall mounted rack
- Available in 1.25", 3" or 8" depths
- Spools may be purchased separately in packs of 4 or 10
- RoHS compliant

Best For: Managing excess copper or fiber optic cable lengths in a 19" Rackmount environment.

Price: Starts at $37

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Neat Patch Cable Organizer
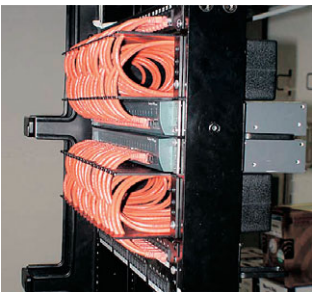
Tired of messy networks? Place the Rackmount Solutions Neat Patch kit between a switch and a patch panel, and you'll never have another cable mess. We guarantee it!

- Promotes bend radius compliance in patch cable management
- Patch cables are easier to trace from panel to electronics
- Priced less than the leading brands of horizontal management
- Uses a patented plastic molded design that is non-conductive. Wire with confidence—there will be no electrical issues such as surges and grounding since the plastic fingers are not riveted to metal or metal D-rings.

Best For: Enterprises building a new network or wanting to clean up an existing installation.

Price: Starts at $59.34

Contact: (866) 207-6631 | www.rackmountsolutions.net

Total Cable Solutions Universal LC™

Universal LC™ makes you future-proof. Now there is no need to make additional investments due to increased demand for mini LC. The Universal LC™ addresses the increasing demand for mini LC connectors in high-density data centers by incorporating a universal, adjustable connector that will work in both LC and mini LC ports.

- Adjustable pitch incorporating the standard LC (6.25 pitch) as well as the mini LC (5.25 pitch). Measures 11.4 mm, making side-by-side mini SPF + transceivers possible.
- Reversible polarity
- Rapid Release Latch™ uses a simple "push/pull" method for removing the connector from a crowded panel.
- High-density 2 mm Jacket creatively designed with both simplex fibers into one jacket while still terminating into a duplex LC or SC connector saving you over 66% valuable space.
- Bend-insensitive fiber prevents fiber breakdown and substantial power loss

Best For: High density data centers looking for a fiber cable solution for both LC and mini LC.

Contact: (888) 235-2097 | www.TotalCableSolutions.com

Black Box Cable Support Hangers

Black Box's Cable Support Hangers hold the same amount as J-hooks but at half the cost. These loop hangers provide sturdy support for all types of communications cable— CAT5/5e/6 and fiber—without sagging, bending, or damaging the cable. What makes these loops so versatile is that they can be mounted and rotated in virtually any direction on the beam either perpendicularly or parallel. Better yet, they can be stacked to hang multiple bundles of cable. Flexible and non-metallic, these loops are easy to use and far more cost efficient than traditional methods such as cable trays. The hangers come in three sizes and can hold up to 5-inch bundles weighing up to 75 pounds.

- Hold the same amount as J-hooks at half the price
- Mount and rotate in any direction on the beam
- Flexible, non-metallic, plenum-rated, and UL®/CSA listed

Best For: Economically hanging bundles of communications cable in environmental air handling spaces.

Price: Starts at $5.39 for a 10-pack.

Contact: (888) 533-1576
www.blackbox.cox/go/CableHangers

Black Box Fiber Optic Storage Rings

Safely store excess fiber optic cable with Black Box's Fiber Optic Storage Rings. The rings maintain the proper bend radius and prevent kinking in excess fiber optic cable. The rings come in two sizes — 12- and 24-inch diameters — and hold 30 to 50 feet of excess cable, depending on the cable type. They are designed for use in the entrance facility, intermediate and main distribution frames, and in wiring closets.

- Maintain proper bend radius and prevent kinks
- Hold 30 to 50 feet of excess cable
- Use in the intermediate and main distribution frames and in wiring closets
- Mount to the wall with wood screws

Best For: Storing excess fiber cable in entrance facilities and intermediate and main distribution frames.

Price: Starts at $29.95

Contact: (888) 433-5049 | www.blackbox.cox/go/FOSR

Black Box Ladder Rack & Accessories
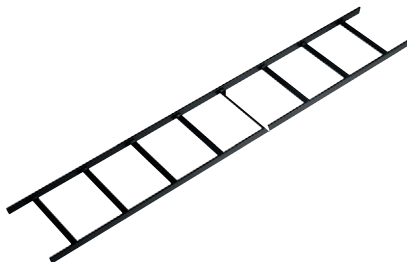
Black Box's Ladder Rack and accessories enable you to create a cable management solution that fits your installation exactly. The Ladder Racks consist of 16-gauge tubular steel, come in 6- and 10-feet lengths, are 12 inches wide, and are available in black or gray colors. Most elements of the solution are guaranteed for life and built to fit anywhere, including ceilings, walls, and wiring closets.

- The 16-gauge tubular steel cable management solution for routing cable along ceilings and walls, and in closets
- Create a custom cable management solution with 6- and 10-foot racks and a wide array of connecting and support hardware
- Choose from black (RM650) or gray (RM663)

Best For: Companies of all sizes in need of a cable management system that can be routed along ceilings and up walls.

Price: Starts at $52.95 for the 6' x 12 Ladder Racks.

Contact: (724) 746-5500 | www.blackbox.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Management

PDU Cables UL Listed Power Distribution Cable Assemblies

Manufacturer of UL Listed, underfloor power distribution cable assemblies, PDU Cables is fast, reliable, and knowledgeable while remaining cost-effective in providing the industry's highest-quality power cables. Use prefabricated, color-coded, and labeled cables to excel in data center cleanliness and organization. UL Listed and Hi-Pot tested, every cable is guaranteed not to fail. PDU Cables provides customers with 24-hour turnaround and standard transit times of one to three days to most U.S. locations (cable expedition available). Currently more than 5,000 data centers use PDU Cables' products to save time and labor and to reduce overall project costs.

- UL Listed and tested power distribution cables
- Molded cord assemblies
- Drop-down SO cord

Best For: Raised floor data center applications.

Contact: (866) 631-4238 | www.pducables.com

## PDU Cables Air-Guard Cable Seal

The Air-Guard cable seal from PDU Cables seals access holes used to route underfloor power distribution cables and communications cables through a data center's floor. The seals provide two-piece design options to manage cabling by allowing users to remove tiles without having to disconnect cables. Additionally, the seal immediately saves energy by significantly minimizing cool air loss while improving static pressure to keep data center equipment from overheating.

- Flexible, simple cable routing via removal of floor tiles without disconnecting equipment
- Reduces air loss in plenum-cooled floors and improves underfloor static pressure
- Extends life of cooling equipment

Best For: Sealing any size of cable opening in a raised data center floor environment.

Contact: (866) 631-4238 | www.pducables.com

CTI Quantum Cabling Solution™
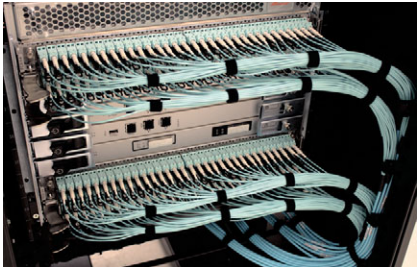
CTI's Quantum Cabling Solution is a user-friendly, highly efficient cable management solution that lets users cable a fully loaded enterprise-class director in half the time of traditional cabling methods. The Quantum is highly manageable and improves troubleshooting and move/add/change activities as compared to traditional cabling methods when deployed with TIA-942-compliant solutions. The Quantum Cabling Solution can handle the highest port count hardware on the market while utilizing the least amount of valuable rack space. It's currently available for Brocade and Cisco 9513 enterprise-class directors; additional configurations are available upon request.

- Fast, simple installation
- Compliant with TIA-942 Telecommunications Infrastructure Standard for data centers
- Compatible with high-density cabling environments

Best For: Cable management for high-density switches.

Contact: (888) 446-9175 | www.methode.com/data

Upsite Technologies HotLok® Round 4-Inch Rack Mount Grommet

The HotLok Round 4-Inch Rack Mount Grommet is the latest patent-pending thermal management solution from Upsite Technologies, designed to seal 4-inch cable openings in server rack cutouts to block bypass airflow and maximize cooling system efficiency. The grommets are engineered with patented Hybrid Brush Technology that offers exceptional sealing and airflow management, which has been proven to surpass other leading brush products on the market. This new design automatically seals around cables with no additional maintenance or monitoring required. Sealing server racks greatly reduces costly bypass airflow, increasing usable cooling unit capacity and ensuring maximized efficiency from HVAC equipment.

- Increases existing cooling unit capacity
- Improves IT equipment reliability
- Supports increasing rack and cabinet density
- An affordable airflow management solution
- Allows installation or removal without disturbing cables
- RoHS compliant

Best For: Enterprises looking to maximize cooling efficiency affordably and effectively.

Contact: (888) 982-7800 | www.upsite.com

Upsite Technologies KoldLok® Surface Mount Raised Floor Grommet

Measurements taken at multiple data centers show that, on average, 60% of valuable conditioned air is not reaching the air intake of IT equipment due to unsealed floor openings. This lost air, known as bypass airflow, contributes to IT equipment hotspots, cooling unit inefficiencies, and increasing infrastructure costs. The KoldLok Surface Mount Raised Floor Grommet is specifically designed to address bypass airflow and its detrimental effects on data center cooling. The ability of the KoldLok Surface Mount Raised Floor Grommet to cover a large tile area makes this product particularly useful for sealing a variety of perimeter openings. It is engineered and designed to seal a variety of existing raised floor tile cutouts and allow flexibility of removing tiles without capturing cables. This product is available in three model sizes: original, large, and extra large.

- Makes re-cabling easier
- Impact-resistant, durable, and RoHS compliant
- Allows tiles to be moved without capturing cables
- Multi-layer, opposing filaments
- 0.01-inch diameter upper filaments
- 0.02-inch diameter lower filaments

Best For: Sealing cable openings in existing data centers.

Contact: (888) 982-7800 | www.upsite.com

RackSolutions Cable Management Arm

The Cable Management Arm from RackSolutions is a compact, flexible cable management solution that's compatible with most types of equipment in the data center. The fully adjustable, ruggedized solution can be attached to equipment in a number of ways to secure network and equipment cables. (*NOTE: Sliding shelf and desktop computer shown are for demonstration purposes only.*)

- Available in 1U and 2U configurations
- Compatible with square or round hole racks
- Designed for equipment with slide rails
- Significantly smaller than OEM cable management arms
- Compatible with Dell, HP, and IBM servers
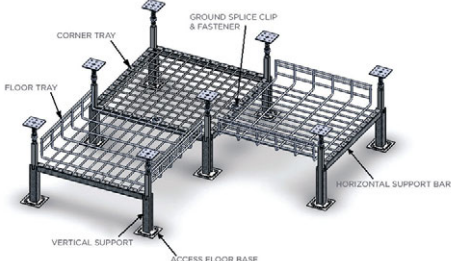- Mounting hardware and lanyard included

Best For: Use with slide rails or sliding shelves.

Price: 1U price: $84.99
      2U price: $94.99

Contact: (888) 903-7225 | www.racksolutions.com

Access Cable Trays FloorFlex Cable Tray System

Access Cable Trays' FloorFlex is a cable tray system designed for use beneath an access floor. Cable tray sections are available in various heights and widths to let users customize their trays according to their cabling needs. The system is also available in various heights above the slab to match any access floor depth. Designed to snap together, FloorFlex offers the ultimate in flexibility and ease of installation.

• No special tools or cutting required
• Available as standard single-level with optional two-level and three-level designs
• No need to remove and replace access floor structural components to install
• Brings cabling as close as 2 inches from the access floor surface for easy access and management
• Fits all access floor manufacturers' makes and models
• Easily reconfigurable to accommodate changing needs
• Made in the United States

Best For: Data centers, general offices, or any other facility utilizing an access floor, as well as data center renovations and new constructions.

Contact: (866) 777-2576 | www.accesscabletrays.com

iStarUSA Group Claytek WA-PP24-C6

From iStar's Claytek division, the WA-PP24-C6 is a 24-port 1U CAT 6 patch panel that's designed for high-speed transmissions cabling and suitable for standard 19-inch rack mounting. Claytek also makes the panel available in 1U 12- and 16-port models and 2U 32- and 48-port models.

• For TIA/EIA-T568-B/A wiring configuration
• 1.75 x 1.25 x 20 inches (HxWxD)
• Black electrostatic powder-coated steel
• RoHS compliant
• Category 6 certified

Best For: Data centers and other organizations requiring affordable, effective cable management.

Price: $101

Contact: (888) 989-1189 | www.istarusa.com

iStarUSA Group Claytek WA-CM1UB 1U Cable Management Rack Kit

iStar's Claytek division provides an economical and effective solution for cable clusters. The WA-CM1UB takes up only one unit of space in standard 19-inch racks and enclosures and helps to keep cables organized. Cables can be easily threaded through the panels, and excess wiring can be stored inside the management casing. Claytek also offers a 2U model, the WA-CM2UB.

• Easy to install and manage
• Economic solution to cable clutter
• Sturdy design protects cables from damage

Best For: Data centers and other organizations requiring affordable, effective cable management.

Price: $50.95

Contact: (888) 989-1189 | www.istarusa.com

Device Technologies Spring-Fast SL Series Encapsulated Metal Grommet Edging


The high-performance SL Series grommet edging from Device Technologies is the company's next-generation wire protection solution. The SL Series meets specifications for Telcordia; BICSI; UL94V-0; and a multitude of performance attributes across various industries, including aerospace, HVAC, medical, power, and transportation. As with all Spring-Fast grommet edging series products, the SL requires only finger pressure to snap on, locking into place to conform to edge requirements. It offers a smooth protective cable, wire, and fiber interface on edges of cabinets, enclosures, and rack sheet metal and/or sharp edges of composite, plastic, or perforated materials.

• Available in a range of sizes with application thickness of 0.02 to 0.13 inches
• RoHS/REACH compliant
• No adhesives needed
• Reels or cut to length
• Indoor/outdoor

Best For: Data centers; telecommunications, equipment rooms, and lab spaces; access floors and underfloor cable management; and racks and chassis.

Contact: (800) 669-9682 | www.devicetech.com

Clark Wire & Cable CAT5-FLEX
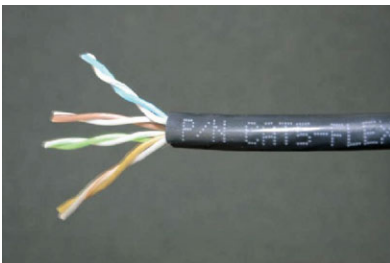
The CAT5-Flex cable is a truly distinctive product. The black pressure extruded polyurethane jacket makes this cable extremely resistant to cuts and abrasions, while maintaining unbelievable flexibility. The stranded conductors give a very high flex life, minimizing breakdowns. A true field cable resistant to sunlight, oil, and water. Compatible with standard RJ45 connectors (stranded conductor rated).

• Exceeds TIA-568-B Specifications
• Moisture Resistant
• Oil Resistant
• Tough UV and abrasion Resistant Jacket

Best For: Data centers in need of a truly flexible cable.

Contact: (800) 222-5348 | www.clarkwire.com

BUYING TIPS:

Cable Management Solutions

MANAGING CABLES is an afterthought. That's an unfortunate reality among many data centers, says Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com). Among other things, not having a cable-management plan and guidelines makes troubleshooting problematic. But numerous solutions are available. Consider the following tips when buying a solution.

Overhead or underfloor? Andrew Schmeltzer, technical cabling specialist at Black Box Network Services (www.blackbox.com), says you'll need to decide whether you'll use an overhead or underfloor system. Budget is one factor. Overhead systems, he says, are less expensive. Also, while plenum cables may be required in an underfloor system, they aren't in an overhead system where cabling is installed below the ceiling grade, resulting in cost savings.

Other factors include room and cabinet sizes (follow TIA-942 mandates and compensate for different cabinet sizes), separation of power and telecommunication cables (determine where electrical cables are run and plan data cabling runs accordingly), and distance between cables.

Plan for expansion. Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says if you intend to incorporate more equipment in the future, ensure your cable management configuration allows for it. Do this by making certain managers (both in-rack cable managers and external trays and ladders or conduits) don't meet or exceed their fill capacities. Most management options are available in multiple sizes, she says, ensuring a fit with plenty of excess if needed.

Also seek solutions with the flexibility to add new equipment or troubleshoot an existing component. "Lean toward reusable options such as Velcro straps in lieu of cable ties and managers that allow easy access to their contents," she says. Additionally, have an idea when you're looking to expand and by how much. If you expect rapid and near-term growth, keep cables loosely organized during implementation by cutting down on the bundling and by using managers (D-rings vs. managers with covers) offering easier access.

Color and labeling. Koty says when possible, use color-coding to help visually identify cables quickly, simplify management, and save time when tracing cables. With data cables, use color to identify the cable's role/function or connection type. With power cables, use color to identify and organize dual-power feeds for redundant power sources.

Labeling can prove critical if a problem arises, Koty says, by enabling quicker isolation of cables if you must shut down power. Secure labels so they're accessible but difficult to remove. Also, maintain a spreadsheet that identifies the cables and colors, where cables come from and go, and configurations.

Vendor choices. Vendors should have experience that matches your business' size and type, warranty their products and work, offer easy ordering, provide complete solutions and knowledge concerning network configurations, carry parts that fit into your existing systems, and guarantee installation and network performance. Because cable management systems affect a wide range of data center infrastructure subsystems, including airflow management and mechanical and electrical distribution, Lars Strong, senior engineer at Upsite Technologies (888/982-7800; www.upsite.com), says a vendor needs to have comprehensive knowledge of data center operations.

Odds and ends. When doing cabling work, experts say to remove unused and abandoned cables, cut cables to correct lengths, protect cables from rough edges, seal airflow bypasses, and avoid overuse of organizers.

"Depending on equipment configuration," Viars says, "a channel or D-ring style vertical solution, along with a couple well-placed horizontal managers, is typically sufficient." Also, she says, Velcro ties can go a long way toward easily tidying up areas with minimal bulk. ▣

BUYERS' CHECKLIST

✔ **Installation concerns.** Be aware of vertical cable management types you have or need in cabinets and racks, says Andrew Schmeltzer, technical cabling specialist at Black Box Network Services (www.blackbox.com). Also consider the patch panels you have and if they include horizontal cable managers.

✔ **The basics.** Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says no matter the size of installation planned, you'll likely need basic management items such as vertical managers to bundle cable along the height of the racks/cabinets; horizontal managers to bring the cabling neatly from the drop to the equipment; and Velcro straps to bundle cables as needed.

✔ **Testing.** Pre-test all cable before installing, says Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com). Once installed, it's more difficult to test and identify problems.

KEY TERMS

Cable bend radius.
The minimum radius a cable can acceptably bend and still function as intended.

TIA/EIA.
The TIA (Telecommunications Industry Association) and EIA (Electronic Industries Alliance) provide best practice guidelines regarding cabling infrastructure.

SIX QUICK TIPS

Secure Your Data Center Perimeter

Learn To Control Access & Thwart Unauthorized Guests

DATA SECURITY BEGINS WITH controlling physical access to your organization's critical environments, because one rogue individual standing in front of a server is no less dangerous than a hacker in another country. If you're relying on a few closed doors and a scattering of watchful employees to repel unauthorized users, it may be time to put together a more comprehensive plan. We've rounded up some ways you can improve your perimeter security and reduce your facility's attractiveness to interlopers.

✔ Be Unapproachable

When your building is your data center, it isn't enough to be standoffish. Beyond blending into the scenery and minimizing signage, Damon Petraglia, director of forensic and information security services at Chartstone Consulting, says that your first line of defense should start far out from the facility, with a fence and controlled access to the property before you even get to the facility.

"Depending on the sensitivity of systems and data contained within, [controlling access] may be done with a manned guard house, which will check persons wishing to enter the property against an access authorization list," he says. Reducing trees and shrubbery around the building further discourages unwanted loitering, and earthen berms can sometimes provide inexpensive alternatives to fences.

Remember that simply peering through windows could give people access to sensitive information such as where key infrastructure elements are housed. "A lot of times you see data centers that have no windows, but the last few I've looked at either have windows in them or spaces where you can see directly into the data center," says Joseph Beal, chief information security officer at Creative Computing Solutions (www.ccsin.com). "Stay away from windows if you do have them, or black them out if the windows are in a place where they can provide information."

✔ Opt For Multiple Authentications

A single method of validating access—things such as swipe cards or passcodes—offers only one barrier to entry into restricted spaces. Matt Barnette, vice president of sales and marketing at AMAG Technology (www.amag.com), says that forcing the use of multi-authentication access controls is much more secure.

"Typically, the way we recommend these facilities to be locked down is to use a card access system that has the ability to have multiple factors of authentication, not only using a card to gain access to the perimeter or to a door, but also having a card plus PIN, and even in some higher security areas, having a card plus biometrics."

One security layer that's often overlooked is at the rack level. Beal says that's a perfect opportunity to increase authentication without incurring much additional cost. "For the company that has issues with cost, one inexpensive thing to do is to make sure at the very least to have racks that can be locked," he says. Beal says that organizations should have "at least three means of authorization, whether that's through a key lock at the rack or some kind of biometrics or a swipe card to get into the facility or computer room."

✔ Add Video

Barnette suggests that once a data center has established a security baseline, it should overlay that with a video surveillance system that can also provide some intelligence by being able to put in a perimeter. Improved camera technologies on both the hardware and software sides provide data centers with better options for tightening security. "Most of the new camera systems have the ability to define a virtual perimeter even without a sense line, and if something crosses that line in the video, it would actually generate an alarm," Barnette says.

Surveillance and closed-circuit cameras are much less cost-prohibitive than in years past. "IP-based cameras and analog cameras have become so inexpensive and are invaluable," Petraglia says. "There are even open-source tools that can be downloaded to create an alert for security staff when motion is detected on a particular camera. I highly recommend using trusted and known products when it comes to security; however, there are low-cost and free alternatives, which are better than nothing."

✔ Beware Of Social Engineering

Petraglia says that gaining access through social engineering continues to be a major problem for data centers and other critical environments. "I have performed social engineering tests throughout the country at federal and corporate secure data centers and have managed to talk my way into most and bypass all security measures," he says.

He points to tailgating as a primary example of how an unauthorized user can quickly gain access to otherwise secure areas, and he encourages data center managers to prohibit smoking on the property as a first step toward eliminating tailgaters. "'Piggy backing' or 'tailgating' a smoker into a facility is the No. 1 way I have gotten into secure facilities," Petraglia says. "If you force smokers off the property, it dramatically limits the opportunity to follow that person into the facility."

Barnette agrees, adding, "The weakest link in any system is the actual users themselves who are gaining access to the facilities." He believes that well-documented policies and procedures, coupled with thorough user training, are important pieces of an overall security plan. "Simple things like tailgating are so very prevalent," he says. "You hold the door open because that's our custom here in North America, and somebody walks in right behind you that shouldn't even have access to the facility." P

✔ Ensure Security Systems Are User-Friendly

Robust security programs are only as good as the operators monitoring them, so make the effort to ensure your systems are user-friendly. "Even in some of our highest security applications, they have a very detailed installation with cameras and access control and a lot of monitoring, and yet they don't put a lot of thought into the user aspects," says Matt Barnette, vice president of sales and marketing at AMAG Technology (www.amag.com). "Who's actually going to be monitoring the system? How easy is it for them to use the system that they're going to be monitoring?" He says that usability "tends to be a big issue, because the biggest link is the operators and the actual card holders that have valid access."

✔ Keep Authorization Lists Up-To-Date

Accurate and complete authorization lists are a must in any security program, no matter the methods you use or the complexity of your systems. Damon Petraglia, director of forensic and information security services at Chartstone Consulting, says that maintaining access authorization lists and ensuring the security staff and systems are constantly updated to reflect who is and who is not authorized to access the facility is one of the most often overlooked ways that data centers can mitigate their physical security risks. "Access authorization lists should be updated often (daily) to ensure only authorized individuals gain access," Petraglia says. "If the systems and data do not warrant a manned gate, then the gate should be controlled with an access card, PIN, or biometric device."

BONUS TIPS:

✔ Limit entry points.

"All doors should have no handles on the outside. They should function to be opened from the inside only," says Damon Petraglia, director of forensic and information security services at Chartstone Consulting. "The only exception should be a monitored entrance which everyone must use."
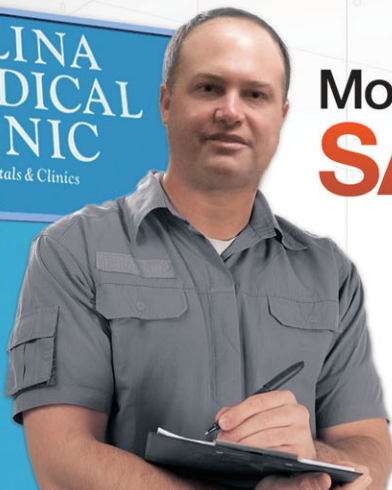
✔ Lock down the loading dock.

Joseph Beal, chief information security officer at Creative Computing Solutions (www.ccsin.com), says that loading docks are often the easiest way to get into a data center, and just about anyone has unfettered access to the major part of the data center via the loading docks. "I think a major issue in data centers is to make sure to secure your loading docks and have access controls in place."

SIX QUICK TIPS

Get More From Your Existing Data Center & Equipment

Techniques To Extend The Life Of Your Space

OPERATING A DATA CENTER requires juggling a lot of balls in the air. Arguably, trying to extend the useful life of a data center requires even more juggling, if for no other reason than expanding or building new data center space is incredibly expensive in terms of capital costs. "Extending the life of existing facilities can help defer or avoid this investment," says John Stanley, 451 Research senior analyst, data center technologies and eco-efficient IT. Use the following tips for lengthening an existing data center's life.

✔ Virtualize

Kris Domich, principal consultant, enterprise services at Dimension Data (www .dimensiondata.com), says one can essentially spend three units of currency in a data center: space, power, and cooling. "Theoretically, anything that slows the spend rate of these resources will extend the life of an existing data center," he says. A good starting place to doing so is virtualizing server images onto existing servers able to run hypervisors, he says. A more advanced tactic is virtualizing server images on high-density blade server platforms. Although these approaches tend to use more power and require more cooling per capita, he says, the amount of legacy hardware an enterprise can retire almost always offsets such consumption.

Domich advises enterprises to implement a data center policy that requires all new servers be virtualized or housed on a blade. "Not all servers will be capable of running as a VM, but more will than most believe," he says. "If a VM isn't an option, consider a dedicated blade. If neither will support the application/server instance, only then should a standalone dedicated server be considered. At a minimum, this will slow down the rate of space consumption."

✔ Take Preventive Actions

Implementing good capacity planning and asset management practices early on can prevent problems from occurring later. Stranded power and cooling are examples. Stanley describes "stranded capacity" as capacity that can't be used for whatever reason, such as a rack that has ample power on its circuit but may be unusable if poor airflow in the room can't cool the rack.

Domich says beyond running out of space, power, or cooling capacity, MEP (mechanical, electrical, and plumbing) subsystems can negatively affect data center lifespans. Perform preventive maintenance on these subsystems according to OEM specifications and common sense, he says.

Data center operations personnel can perform some simple maintenance tasks, such as ensuring systems aren't overloaded, changing filters on CRAC units, and regularly clearing condensation drain lines, he says. "More complex preventative measures may cause warranty voids, equipment failure, injury, and even death if not performed by qualified personnel," he says. Complex tasks can include inspection and maintenance of mechanical cooling units, UPS battery maintenance,

inspecting electrical conductors, breaker testing, lug torque, arc-flash analysis, and emergency power exercising and maintenance. Perform these annually at a minimum and more frequently if certain business conditions warrant, he says.

Reviewing an organization's business plan often and thinking about the review as a way to confirm current and future assumptions is something some companies don't do well enough, says James Hall, marketing manager at Staco Energy Products (866/261-1191; www.stacoenergy.com). "By continuously

✔ Take Advantage Of Free

One effort that doesn't involve a direct expenditure is following best practices regarding airflow, Stanley says. Installing blanking panels in unused server rack units and sealing gaps in raised floor areas to prevent cold air leaking is easy, he says. Depending on the in-house expertise

monitoring the pulse of your business, IT can apply all learned and partner knowledge and resources to ensure their internal products and service levels are in place."

available, you might need some outside assistance with more advanced airflow management techniques. Because cooling is critical, he says, personnel with appropriate training and experience should handle changes to the setup.

Be sure to take steps to avoid human error, which Hall notes is one of the top reasons for data center downtime. Other contributors to downtime include backup batteries failing to ride through power interruptions and outages and batteries being unable to support the transition from primary backup to generators for longer power outages.

"Successful lifecycle management approaches include a combination of preventive maintenance and predictive monitoring. One element of predictive monitoring in particular that's gaining more attention within the data center market is proactive battery monitoring, which is the first line of defense during a power outage," Hall says. "UPS monitoring can provide required predictive notification and alarms that aid in scheduling unplanned preventive maintenance."

Given the frequency of human error directly impacting uptime and IT being responsible for causing the errors more often than not, Hall says having professional service organizations in place is one of the wisest investments to make.

✔ Think Long-Term

When looking to extend the life of your existing data center, think universally. For example, Hall advises, seek an optimized mix of CAPEX and OPEX with the objective of achieving the lowest TCO.

Small to midsized enterprises, he says, focus on front-end CAPEX, or "solving today's needs, making outcomes a mixture of different CAPEX decisions without a planned view of their TCO." This results from companies operating with fewer IT, operations, and facilities resources and being in "a constant mode of belt-tightening and pressure to lower costs," he says. Further, when small to midsized enterprises look for guidance and knowledge, they receive "enterprise vs. SME-level advice," he says, that ignores the uniquely different environments of each.

"Data center evolution in SMEs starts with network closets, migrates to computer rooms, and evolves into small data centers," he says. Resources that understand needs of a small to midsized enterprise and provide solutions in this space are critical. "Too often, infrastructure providers are far more interested in locking SMB companies into their solutions and then driving for futures that may not be necessary or appropriate," he says. Capital equipment and space requirements aren't planned for in advance, resulting in buying new replacement hardware and infrastructure while decommissioning existing capital as the company migrates and evolves, he says. "A more planned approach upfront will minimize this waste and result in extended use of the CAPEX equipment already in place," Hall says. ▪

✔ Check Your Service, Maintenance & Warranty Coverage

Kris Domich, principal consultant, enterprise services at Dimension Data (www.dimensiondata.com), says his organization often sees critical data center systems such as UPSes, generators, ATSes, and mechanical cooling systems that are out of warranty and have no service or maintenance coverage beyond the default amount purchased with the equipment initially. Many parts for such critical systems aren't easy to come by, he says, so enterprises should ensure appropriate service, maintenance, and warranty coverage is in place to satisfy business continuity requirements if components fail.

✔ Choose Partners Wisely

When seeking out maintenance and monitoring-related resources and guidance, James Hall, marketing manager at Staco Energy Products (866/261-1191; www.stacoenergy.com), says to choose your partners wisely. "Ensure they have all the tools available and can provide unbiased guidance to help you create an optimal model by which to drive the selection process prior to committing resources and dollars."

BONUS TIPS:

✔ Remove comatose servers.

John Stanley, 451 Research senior analyst, data center technologies and eco-efficient IT, says it's essential to identify and remove "comatose" servers, or those that are plugged in and turned on "but not doing work that anyone cares about." This doesn't involve a direct expenditure, he says, but can be costly in terms of staff time and effort.

✔ Two-person maintenance.

After developing a centralized preventative maintenance schedule for space, power, and cooling systems, Kris Domich, principal consultant, enterprise services at Dimension Data (www.dimensiondata.com), advises assigning two people the responsibility of carrying out or managing maintenance tasks, with one as primary and one as backup. Review the reports on maintenance activities monthly.

SIX QUICK TIPS

Automate Disaster Recovery

Planning, Prioritizing & Testing Are Key To Putting Disaster Recovery On Autopilot

MOST COMPANIES HAVE established some level of DR (disaster recovery) program, but more and more enterprises are learning the value of automating the process. Before you leave your manual system behind, check out these tips to be sure you're ready to make the jump to an automated program.

✔ Get Buy-In

Before you begin designing an automated disaster recovery plan, it's critical that your organization's key stakeholders agree on the project's scope and objectives and that everyone understands the potential impact of budget constraints. "Create a document that management in your company signs off on which details what you're protecting, to what degree it's protected, and in what way that protection may be exceeded given a certain disaster," advises Mike Chase, J.D., CTO at dinCloud (www.dincloud.com). "Later you will find that costs will mitigate the degree of protection desired, and when a particular disaster exceeds the degree of protection that everyone originally found acceptable and signed off on, you will not be left alone holding the bag."

✔ Prioritize

Most enterprises can't back up everything, so you may need to determine which systems or datasets are most critical. "You should start with a priority list before you talk about anything else," says John F. Pearring, manager of sales and marketing at STORServer (www.storserver.com). "Know which systems in your environment you have to restore, and the reason. Some people think they have to restore everything, but it's not true. You don't." He says that, once less important functions and easily replicated data are removed, "the list of applications or systems that are needed in a disaster recovery scenario will be smaller than you think."

"Always start with the basics and work upwards," suggests Heinan Landa, CEO of Optimal Networks (www.optimalnetworks.com). He says IT groups should examine their infrastructures to identify which areas make sense to focus on first. "What is the easiest and most effective thing to automate? Does the automation provide you with advantages over performing it manually? What sort of checks will you have on the automation? Start with the simpler things, like file backup, and get them working, and then move toward the more complicated things." By fine-tuning your processes on less complex systems, you'll be ready to take on tasks that have multiple layers or require more oversight.

✔ Watch The Timing

"When selecting an automated DR solution for applications, be sure to confirm that the automation works in both directions and within acceptable time frames," says Josh Mazgelis, product marketing manager at Neverfail Group (www.neverfailgroup.com). He cautions that restoring services may be quick, but bringing systems back to production often requires more time and manual intervention. "I've seen a lot of customers test their DR solution's ability to get to the DR data center, but then simply turn the production servers back on without using the DR solution's given process. Being able to failover in minutes becomes much less valuable when it takes hours or even days to fully get back into the production data center." He believes that by getting a more complete understanding of each automated solution's design, data center managers will be better equipped to choose the right one for their needs.

✔ Virtualize

As virtualization technologies become more mature and robust, dinCloud's Chase encourages data center managers to rely more heavily on them when automating their disaster recovery programs. "Virtualize everything," he says. "Not just your servers, but your desktops, applications, storage, and voice system."

If a disaster forces your business to relocate or spread its operations across several areas, virtualization may offer fewer location-based restrictions and allow your organization to get back on its feet more quickly. "Leaving part of your business behind really isn't an option and only adds to the chaos," Chase says. "Plus, it's easier to move a virtual infrastructure than a physical one. It costs less, too."

✔ Remember Local Data

Individual workstations hold an enormous amount of information in many organizations, most of which isn't covered in an automated DR plan. "What's usually left out is the data that people have sitting on workstations that isn't on a server," STORServer's Pearring says, adding that the common solution—to advise people that their local data won't be backed up—is ineffective, because it often leads to disgruntled executives who've learned their important data was lost. "You can't assume you've solved that problem just because you have a rule," he says.

Pearring adds that trying to get everyone to use NAS is also asking for trouble. Only a DR plan that incorporates all areas where information is stored will be able to give you a reliable recovery point in an emergency.

✔ Test, Test, Test

The only way to ensure your DR program works is to test it. "The actual disaster recovery plan begins with the test," Pearring says. "There are things you're going to miss in a disaster recovery plan [if] you do not [test] it." He says that every recovery test, no matter how sophisticated, is likely to return errors, and ramping up employee participation during testing will help you understand how the plan is likely to hold up during an actual emergency.

"Regular testing of DR solutions is a very important task for many reasons," Mazgelis adds. "Even with a fully automated solution, IT needs to know how to enact the process, what to expect from the process, and how to enact the process of moving back to the original

✔ Remain Vigilant

Heinan Landa, CEO of Optimal Networks (www.optimalnetworks.com), recommends that data center managers maintain what he calls a "healthy skepticism" about automated disaster recovery and says they should be constantly asking if their plan really works. "I also believe that you need to properly establish recovery time objectives and recovery point objectives for each application or type of information or service that you are trying to automate the disaster recovery for, and see if it really bears out in live testing," he says.

✔ Monitor Connectivity

It's important to keep network connectivity in mind when implementing an automated disaster recovery program. "With the multitude of firewall rules, network subnet routes, and IP-specific whitelisting, the move to a DR site often identifies something that has been overlooked," says Josh Mazgelis, product marketing manager at Neverfail Group (www.neverfailgroup.com). He says that issues such as mail relay accessibility and VPN access sometimes become unexpected sticking points. "During testing, IT staff become focused on making sure that applications are running, and sometimes it's not until the users get involved that those connectivity problems get highlighted."

BONUS TIPS:

✔ Know your enterprise.

"Document your entire infrastructure first," advises Mike Chase, J.D., CTO at dinCloud (www.dincloud.com). "You can't plan to protect what you don't know you have." Remember to include legacy systems and individual workstation data.

✔ Start with the easy stuff.

"I would say that the easiest things to automate are backup systems," says Heinan Landa, CEO of Optimal Networks (www.optimalnetworks.com). "From there, everything that you automate requires more attention and more time on an ongoing basis."

servers." He also points to the benefits gained by pinging the environment for changes. "It is inevitable that something in the environment has changed since the last test, and sometimes those changes can affect the ability of the solution to work properly or affect the ability of the protected applications to work in the DR data center."

Landa believes the complexity of modern systems doesn't easily lend itself to a "set it and forget it" approach and says that testing is the only way to confirm the program is working. P

Optimize Your Servers

Get More Performance From Existing Setups

WHEN YOU START TO NOTICE the performance of your servers dipping even a little bit or you see a new server that would be faster than the one you currently have, you might be tempted to consider an infrastructure overhaul.

But before you opt for a potentially expensive investment in new infrastructure, consider some of the simple ways you can optimize your existing servers and increase overall performance. Here are a few tips that will help you decide if you can optimize your existing servers or if your best option is to upgrade.

✔ Understand Performance Indicators & Predict Possible Issues

Before you consider optimizing or upgrading your servers, you should first make sure that there are actual reasons to do so or that there is a potential for problems in the future. There are tell-tale signs, such as noticeable slowdowns in performance, data bottlenecks, and others, but you may need to go more in-depth to find other indicators.

"Hardware health metrics are a good leading indicator of future server performance issues and often go ignored when monitoring server health," says Suku Krishnaraj, senior vice president of product strategy at SolarWinds (www.solarwinds.com). "Server performance tools can discover processes and report out hardware metrics."

Another indicator to look out for is the capacity of your servers. Theoretically, all servers have a maximum capacity of 100%, but the main goal should be to get at least 70% if not 80% from all of your servers. This ensures that you are getting the most out of your hardware and you don't resort to upgrading when it isn't necessary.

"If you've invested money in servers, make sure they are running near 70% capacity during daily busy times and at least 40% during low periods so that you are sure you are getting everything you can from that hardware," says David Leith, technical product manager at Uptime Software (www.uptimesoftware.com). "We find that a large number of companies we work with run their servers below 30% capacity and are still adding more servers; this is a huge waste of resources."

✔ Invest In Monitoring Software

Another way to decide whether you need to make adjustments to your servers and whether those adjustments are making a difference is to purchase monitoring software for both servers and applications. This will let you know if your servers are performing as they should be in multiple areas and tell you how many resources your applications are using. These solutions serve as real-time monitoring tools and much more.

"Server monitoring tools with deep visibility into hardware, virtualization, and application workloads are essential for understanding your environment and making educated decisions about hardware

✔ Perform Tweaks To Avoid Massive Upgrades

To avoid upgrading entire servers, there may be a few simple tweaks you can make or simple tools you can take advantage of to get a little more out of them. "Basic workload analysis, balancing, and tuning cost nearly nothing outside of labor," says David Leith, technical product manager at Uptime Software (www.uptimesoftware.com). "Some capacity tools are expensive initially but will save you money by delaying nonessential upgrade costs or finding untapped resources. They can pay for themselves many times over in a growing data center."

✔ Consider End-User Monitoring Tools

"Keeping servers up and running is a good goal, but it doesn't guarantee customer service, especially if you are providing services via the Web," says Suku Krishnaraj, senior vice president of product strategy at SolarWinds (www.solarwinds.com). "All servers may be 100% available, but your end users may still be unable to log in to their portal because of the applications not being optimized. In these cases, especially if you have limited budget, you may want to look at end-user monitoring tools. They tend to be an inexpensive and extremely effective way to measure availability and performance of your Web from an end-user perspective."

BONUS TIPS:

✔ Defragment your hard drive for a boost.

Hard drives in servers can often get bogged down with the constant reading and writing from intense applications. If you haven't defragmented your drives for an extended period of time, it could help explain a sudden drop in overall server performance.

✔ Check for weak links in your server farm.

According to Sean P. McDonough, product manager at Idera (www.idera.com), "the most important thing to understand is that a server farm's overall performance is only as strong as its weakest link." He suggests monitoring your servers and comparing them side by side to ensure that all of them are running at their highest capacity.

upgrades," Leith says. "They can also provide early warning alerts when capacity problems are going to impact your mission-critical applications."

To ensure that you are getting that extra performance without taxing your hardware even more or spending unnecessary money, Krishnaraj recommends looking at both agent-based and agentless server monitoring tools, but says that agentless solutions are better for small to midsized enterprises because they remotely collect metrics without consuming hardware resources and provide a more accurate view of server performance.

✔ Know What Applications Are Running On Which Servers

Sometimes improving server performance is as simple as understanding your applications and how much server capacity they use. One way to lower the amount of hardware resources an application uses is to virtualize it. If that isn't an option, take a look at the applications on each server and determine whether they are truly necessary or are simply a burden on your servers.

"If your [server] farm is being used purely for collaboration and sharing, there isn't any need to run business intelligence-related service applications," says Sean P. McDonough, product manager at Idera (www.idera.com). "Run only the service applications you need in order to stay lean. If you need additional service applications later on, you can always provision them at that time."

✔ Know When It's Time To Upgrade

Krishnaraj, Leith, and McDonough share some instances where a server upgrade may be necessary or, at the least, advisable:

Krishnaraj: "If you have taken the performance optimization steps above and your CPU and memory usage is still at about 80% and you've exhausted your memory upgrade slots, it's definitely time to invest in a new server. Another driver could be warranty expiration dates."

Leith: "Technology improves so quickly that any server over three years old may simply be cheaper and easier to replace than to upgrade. . . . In environments where virtualization hasn't been utilized, it's almost always better to replace several outdated servers with a new virtualization-optimized server."

McDonough: When it comes to SharePoint servers, "The most common time to re-evaluate whether or not to start over is between SharePoint versions. The raw minimum requirements for a SharePoint 2010 server, for example, are a 64-bit quad-core processor, 8GB of RAM, and an 80GB system drive. These are dramatically greater than the requirements for a SharePoint 2007 server, and many organizations who used SharePoint 2007 considered the migration period to be a good time to acquire new hardware." **P**

HOW TO

Get Started With Environmental Monitoring In The Data Center

Perfect Conditions From Start To Finish

ENVIRONMENTAL PROBLEMS are the main causes of data center downtime. When environmental conditions are not perfect—or worse, out of control—equipment, productivity, and the data center budget are all affected. Indeed, there is a science to implementing the right environmental monitoring solution for the data center, but every data center is not the same. Knowing where to begin, what tools to use, and understanding the benefits and pitfalls, can help you manage risk, make the data center more comfortable, and save you huge headaches down the road.

Understand The Basics

For Dave Ruede, vice president of sales and marketing with Temperature@lert (www.temperaturealert.com), getting started with environmental monitoring is much like deciding which temperature in your home is most comfortable. "For data centers, server and telecommunication rooms, this can be as simple as taking a look at the thermostat in the room, which will tell you the temperature at that location. From there, collecting data for a baseline is the next step. But temperatures in data centers and even server racks and aisles can vary significantly."

Ruede says taking a baseline will require measuring temperatures in several places, near the floor, ceiling, at the outlet of the AC registers, and for a complete data set, at the bottom and top of server racks both inside and outside.

According to Bob Douglass, vice president of sales and marketing at Sensaphone (www.sensaphone.com), the first step is always to determine your needs. "That may sound simple and obvious," Douglass notes, "but there are usually more things to consider up front than most people realize." Although people typically think of temperature first, Douglass says, there are other issues that need to be considered, such as humidity, which can produce condensation or corrosion and shorten the lifetime of electronics. Other issues can arise from city power or UPS failure, and airflow issues such as smoke and fire. "In the event of an actual fire, who is contacted first? It is not always the IT staff responsible for implementing the disaster recovery plan," Douglass says.

Understand The Environment

Michael Sigourney, president and CEO of AVTECH Software (www.avtech.com), says he recommends that IT and data center managers "know thy facility." "The first thing an IT or facilities manager needs to consider and create is an understanding of the basic layout and elements, both structure and equipment, within their facility," he says. "Knowing where threats are likely to occur or have occurred in the past is key to planning success. Environmental monitoring is not a 'one size fits all' scenario, as each facility is unique."

Key Points

- Getting started with environmental monitoring is like deciding which temperature in your home is most comfortable—start by understanding the current conditions.

- Understand a facility's basic layout and elements, structure and equipment, and past threats. Environmental monitoring is not a 'one size fits all' scenario.

- Look for an environmental monitoring solution that will meet both current monitoring requirements and allow room for future expansion as needs change.

Sigourney says as equipment is relocated or replaced over time, the environmental structure of a facility changes and will likely require changes in sensor location, a need for additional sensors, changes in cooling, or other considerations in order to maintain effective monitoring.

The most important information companies can consider before getting started, in the opinion of Temperature@lert's Ruede, is the history of the data center, server, or telecommunication room's operation related to environmental monitoring. Ruede suggests questioning issues such as the reliability of the location's power company; potential power interruptions due to thunderstorms, the status of the facility's electrical systems and equipment; and whether or not cooling systems can maintain during peak demand periods.

Understand The Tools

After evaluating your needs and analyzing your vulnerabilities, Sensaphone's Douglass says you should choose a vendor and basic platform to work from. "Most systems will involve some sort of base hardware device that sensors connect to, and that also handles the communications," he says. "The next step is to start planning sensor types and locations, start buying, and start installing." One further optional step, Douglass notes, is to consider integration into your existing network management software using SNMP. "This investment is only time, but is well worthwhile." One thing to be careful of, Douglass says, is equipment dependencies. For example, monitoring systems that operate on a server or PC would be useless if the server went down. And wireless sensors should use their own Wi-Fi network to ensure operation during power failures. He says built-in battery backup is never a bad thing with monitoring products.

AVTECH's Sigourney says that, after a facility has been analyzed, it is important to look for a solution that will meet both current monitoring requirements and allow room for future expansion as needs change. There are several environmental monitoring options available for SMEs, he says.

"Whether a manager is looking to monitor temperature only, desires a wireless solution capable of monitoring up to 100 sensors, or something in between, an environmental monitoring solution typically includes the following key components: a monitor, sensors, software, and support services."

Sigourney points out that some vendors don't provide software, although their products can still be monitored using third party SNMP-based software. In his opinion, the best solutions include software. "This prevents wasted time trying to get hardware and software from two vendors working together."

Costs & Benefits

According to Douglass, environmental monitoring costs can range from a few hundred dollars for a simple monitor to $3,000 or more for an expandable enterprise system. Ruede says costs largely depend on the number and type of sensors deployed and how they are monitored.

At the end of the day, Sigourney says the benefits of installing an environmental monitoring solution include a faster response to potential disasters, reduced downtime, lower ongoing management costs, reduced overtime and perhaps most important, peace of mind. He says the pitfalls of not installing an environmental monitoring solution can be expensive hardware replacement, unexpected downtime or overtime work, or an organization that appears as though it is out of business. P

Top Tips

The following tips are provided by Chris Gaskins, vice president of product development at RF Code (www.rfcode.com).

✔ Data center management today is all about risk management, automation, and efficiency/optimization. All three of these actually tie together when you are talking about environmental monitoring, as understanding environmental issues such as temperature, humidity, fluid, and air pressure affects risk management strategies, automation projects, and especially efficiency/optimization. You can't measure and improve something that you don't monitor, and you can't monitor what you don't have instrumented.

✔ Installing environmental sensors at the correct locations as well as fully integrating and utilizing the information produced by these sensors are a must in order to fully realize the benefits of an environmental monitoring system.

✔ As your implementation matures, you will find that the data/information from the environmental monitoring system will need to feed in to multiple different systems. With that in mind, it is key to select an environmental monitoring system that is open and easy to integrate with. Closed proprietary systems should be avoided.

✔ The physical implementation of the sensors can be a very time-consuming and expensive exercise. Plan for this accordingly in your purchase decision and try to select a solution that reduces this deployment time and complexity as much as possible.

HOW TO

Improve Email Security

Take Steps To Prevent Data Theft & Email Server Attacks

EMAIL IS SUCH AN INTEGRAL PART of the office environment that it may be an afterthought to some users. With thousands of emails flying in and out of your employees' inboxes every day, it may seem like a daunting task just to keep up with the traffic, let alone ensure that outgoing messages are encrypted or that incoming messages are safe to open. Here are some steps you can take to help secure individual emails as well as the company's entire email server.

Spot The Common Threats

The terms "spam" and "phishing" are now ingrained in the world's vernacular. But they are becoming so common that some people may not understand how dangerous these types of emails can be. It's important to make sure that every employee in your company is not only aware of these threats but also knows how to avoid them. Once they have a good understanding of outside threats, you should move on to other common pitfalls, including simple human error.

"Sometimes emails get redirected," says Pierluigi Stella, CTO at Network Box USA (888/315-8886; www.networkboxusa .com). "You might misspell an email address and accidentally send it to someone else. Outlook has that very nice feature that tries to guess who you want to send to, so I can type in a name and it can auto-fill the field with some other email address. If I am in a hurry and do not realize what happened, some confidential data may have gone to the wrong person."

Start With Email Encryption

As one of the most basic measures, every company should have some form of encryption attached to its email systems. Encryption helps ensure that even if an email is intercepted, it's less likely that a hacker will be able to mine anything from it.

"Users don't realize that emails are sent over the Internet in clear text, meaning anyone that cares to see these emails can see them with little effort," says James McMurry, president and CEO of Milton Security Group (www.miltonsecurity.com). "Mandating an encryption protocol is a great place to start, and there are many options out there, both open source and paid."

Specifically for mobile devices, McMurry recommends the use of GNU Privacy Guards as well as encryption apps on mobile devices. He says these solutions will allow mobile devices to use encryption when sending and receiving emails. And if a device is lost or stolen, McMurry says companies should use remote wiping to clear smartphones or tablets of every bit of information, including stored emails.

Although encryption is a solid starting point, it can't be the only security measure in place. If an email with important data is lost or a hacker steals it during transmission, it may only be a matter of time before the hacker breaks the encryption. But if you can stop emails with sensitive content before they are sent, there will be virtually no chance of data loss.

That's why Stella recommends implementing a DLP (data loss prevention) solution, which "is a feature installed on your email server or your gateway protection device that will intercept outgoing emails and scan them for private or confidential content," he says. DLP solutions let users send regular emails without a hitch but will often block the transmission of potentially sensitive emails and alert the sender that the email should be encrypted. DLP attempts to remove human error from the equation and is a great last-minute check before an email is sent.

Install An Email Gateway Proxy

With encryption and a DLP solution in place, it's safe to say you're in good shape for outgoing email transmissions, but that's only half the battle. The other half involves blocking incoming emails that may contain viruses or links to phishing scams or other possible threats. Stella stresses the importance of never allowing direct SMTP connections to your email server, because it is a "potential treasure chest of information for hackers, which can hold administrative accounts or a list of all users."

To help prevent the "technological nightmare" of hackers gaining access to your email server, Stella recommends installing an email gateway proxy, otherwise referred to as an MTA (mail transfer agent). Instead of emails landing directly on your email server, an email gateway proxy or MTA will effectively catch the incoming email before it reaches your internal network. Stella says that this type of system integrated with a firewall and IPS can get companies as close as possible to "achieving total protection." P

Key Points

- Never take email security lightly and make sure employees at every level of your company are able to spot threats.

- At the very least, put some form of email encryption in place that will hide sensitive data, including financial or customer account information, from hackers.

- Consider implementing more advanced solutions such as a DLP (Data Loss Prevention) system or email gateway proxy. These systems are designed to prevent sensitive data from leaving the company via outgoing email and stop dangerous incoming emails before they get on to your internal servers.

Action Plan

- Understand the importance of email security and impart that wisdom to your employees. Make sure they understand that the interception of even one simple email could lead to a domino effect that seriously harms the organization.

- Investigate the most common types of threats sent via email and educate your workforce about those threats. Regularly schedule refresher meetings so employees don't forget the information. Make them aware of recent phishing scams or spam messages and use attacks at other companies as cautionary tales.

- If your company regularly sends out health or financial information to clients, you should invest in an email encryption solution that will hide data from prying eyes. But as a rule of thumb, you should avoid sending any sensitive information via email.

- Test your email security systems on a consistent basis to ensure that potentially dangerous emails aren't getting through but also that business-critical emails aren't being wrongfully blocked.

Get Started

When it comes to email security, the best place to start is with employee education. Try to put training courses or meetings in place that will keep your workforce up to date on the newest and most common email viruses and tricks to ensure that they know how to spot potential threats before they can attack. "Continued education about proper use of email is crucial," says James McMurry, president and CEO of Milton Security Group (www.miltonsecurity.com). "Users are forgetful, and the longer it's been since the last time you educated them about email security, the less they remember and the more lax they become."

Top Tips

- ✔ Make sure your employees are using common sense. The best way to prevent leaking sensitive data to hackers and other prying outsiders is to not send that data via email in the first place.

- ✔ Institute a policy that indicates how complicated passwords should be and how often they should be changed. One of the easiest ways for a hacker to get through is to access someone's email account using the user's own password.

- ✔ Check into whether your company is covered by HIPAA or HITECH laws. If so, your email may be required to reach certain security and encryption standards by law.

HOW TO

Clean Your Data Center

When To Do It Yourself & When To Call In The Experts

TO UNDERSTAND JUST HOW IMPORTANT it is to thoroughly clean your data center on a regular basis, simply look at the importance of the data center itself.

"The data center is the central nervous system of the organization, and unclean areas negatively affect the performance and longevity of the equipment," says Tom Conners, market manager of data centers at Square Care (www.squarecare.com). "Large data center operations can lose as much as $4 million per minute due to systems outages brought on by processor performance degradation."

Avoiding performance degradation is the key to running a long-lasting data center and successful company, but it can be difficult to know where to get started and how to proceed. We'll show you what parts of your data center should be cleaned and how often, which cleaning tasks can be performed in-house, and when it's time to invest in the expertise of a professional cleaning service.

Understand What Needs To Be Cleaned & How Often

When beginning the process of cleaning your data center, you should start by looking at every surface, space, and piece of equipment that will need to be cleaned. "Everything can and should be cleaned," Conners says. "This includes cleaning under all access floors within the plenum space, access floor panels and support structures, server racks, CRAC and HVAC units, UPS units, light fixtures, walls, ceilings, and all non-raised floor surfaces."

In essence, a solid data center cleaning should leave no stone unturned. Conners recommends that companies have the under-floor portions of the data center as well as CRAC and UPS units cleaned annually, but that the top of the floor should be cleaned monthly or semi-annually. It's a good idea to set up a solid cleaning schedule to ensure that your room is clean and equipment will be able to perform at the highest level.

Only Perform General Office Cleaning Yourself

With most data centers tasked with cutting costs, it may make sense to avoid hiring data center cleaning services and try to do everything yourself. But most companies have janitorial staffs that are only experienced in cleaning general office environments. Your janitorial team can clean some carpeted and non-carpeted flooring, upholstered chairs, lobbies, break rooms, and other select areas, according to Conners. But in the end, there are certain parts of data centers that should be left only to professional cleaning services.

"Every commercial building needs professional cleaning services," says Jason Roth, director of technical services at Sterile Environment Technologies (www.set3.com). "However, any controlled environment needs controlled environment specialists, not just a professional cleaner. The science used to clean

in a data center is unique and cannot be replaced with common janitorial cleaning."

Choosing A Cleaning Service

After you've exhausted the cleaning capabilities of your in-house janitorial staff, it's time to select a third-party service. From the start, you should compare the reputations of possible choices and the services they provide. Ask for company references from cleaning service providers and ensure that they have a well-defined process for cleaning the essential parts of your data center. You're hiring these vendors to clean the spaces and equipment in your data centers that you aren't able to, so you should make sure they will do a satisfactory job.

Don't forget to also compare the pricing options for different cleaning services. "The data center cleaning should be a turnkey cost based on an agreed scope before the job," Roth says. Conners adds that the price will depend on the thoroughness of the work and the size of the facility, which means that it isn't always the best bet to simply choose the least expensive option.

Keep It Clean

Once your janitorial staff has had a pass and long after the outside cleaning team is gone, you must take steps to maintain the cleanliness of your data center. You should institute strict policies that determine which employees should enter the data center as well as their expected behavior once they are inside.

For instance, data center employees should take great care not to track dirt and debris into the data center room. No food or drinks should be allowed anywhere inside the room or near servers and other important equipment. Creating a set of standards for your data center workers is one way to cut down on cleaning costs and make future cleanings easier. ℗

Key Points

- Understand exactly what needs to be cleaned inside your data center. This will help you realize the importance of hiring a cleaning service rather than doing everything yourself.

- Know the limits of what you can clean. Focus on general office environment cleaning and leave in-depth data center cleaning to the experts.

- Compare cleaning services to ensure you are getting the highest quality of cleaning for the best possible price and maintain the level of cleanliness after the fact.

Get Started

When you decide to hire a cleaning service, you'll want to be sure to thoroughly compare providers. Jason Roth, director of technical services at Sterile Environment Technologies (www.set3.com), recommends that companies come up with a series of questions to ask possible vendors.

Roth says that cleaning services should:
- be trained to certify air class cleanliness according to ISO 14644
- confirm static pressure
- provide velocity testing, if needed
- use equipment that is certified for ISO Class 8 environments

You also need to know what specific services the cleaning company provides for the price it charges and make sure the cleaning team has a pristine reputation.

Action Plan

Tom Conners, market manager of data centers at Square Care (www.squarecare.com), offers the following steps on how to get the most out of the cleaning process:

■ Advise your insurer that you have an active scheduled data center maintenance program. Regular maintenance, including cleaning, is required by most risk management agencies, especially if you are mission-critical.

■ Ask to see all debris retrieved from the cleaning process. This alone can justify the cost of the cleaning.

■ Don't allow heavy pallets or carts onto data center flooring. This eliminates a major cause of scuffing and damage to floor panels and reduces the amount of debris brought into the facility.

■ Require daily progress reports from your cleaning vendor when onsite. It's the only way to know you're getting the quality of cleaning you're paying for.

■ Strictly observe standards such as no food, drink, or liquids of any kind in the data center; regularly cleaning the carpets in high-traffic areas; and eliminating non-essential materials from around your servers and other infrastructure.

Top Tips

The following tips for finding the right data center cleaning service were provided by Jason Roth, director of technical services at Sterile Environment Technologies (www.set3.com):

✔ Make sure the company you plan to hire isn't simply a janitorial service that claims to provide data center cleaning. The cleaning service should have vast experience and expertise.

✔ Ask for or seek out references from reputable companies that have experience with the cleaning service you want to hire. The vendor should be able to provide a list of contacts to call.

✔ Develop a method of procedures for cleaning your data center(s). This should include standards that must be followed so a company is contractually obligated to follow your company's specific methodology.

H O W   T O

Conduct An IT Audit

Make Sure Your Infrastructure Works Exactly As It Should

Your infrastructure and the assorted products and services that make up your data center are not simply set it and forget it. Taking this approach could result in not getting the best performance out of the technology and opening the door for bigger problems in the future. In some cases, you'll need more than an internal monitoring solution to make sure your infrastructure is working as it should. For that, you can conduct your own IT audit or take advantage of the services of independent auditing firms.

The goal of an IT audit is to assess your infrastructure and the controls you have in place to monitor them. Once completed, an audit can tell you if these systems are working correctly or if work needs to be done. IT audits are important because technology is involved in almost every business process. In fact, the revenue stream of some companies could be based on IT technology and has to operate the way you think it should and in a cost-effective matter, says Dave Brand, managing director at Protiviti (www.protiviti.com).

Here is a walkthrough of the IT audit process from beginning to end that shows how it can help your business in the long run.

Pre-Audit & Early In The Process

Before you even contact an outside auditor, you should have an adequate monitoring system in place to track the performance of your infrastructure. "A mix of independent auditing and non-independent monitoring are both important," says Ed McMurray, security and compliance consultant at CoNetrix (www.conetrix.com). "The monitoring can be done by someone in the IT department, because they can keep a close eye on it." Having such a system in place will make the audit process as painless as possible and give the auditor a great place to start when evaluating your data center.

With this information, you can formulate a risk-based list of systems that need to be audited. These can range from security solutions and applications to basic end-user support. This list will also help you decide what type of audit will work best for you. For instance, you can conduct a full audit for a majority of your IT products or you can break it down into smaller segments for faster auditing.

"A full IT audit will cover technical vulnerabilities, like patches being installed in a timely matter or logs being reviewed regularly all the way up to policies, procedures, and business continuity plans," McMurray says. "Or you can have a penetration test only, which is an external assessment of your Internet exposure related to social engineering, telephones, and more."

During The Audit & Afterward

The actual audit process is straightforward. There may be an onsite visit prior to the actual audit where the two sides can work together to formulate an action plan that schedules out the audit steps and when they should take place. From there, an external auditing firm will send an auditor to conduct tests and assess only the infrastructure that you wish to audit. The auditor will also assess your monitoring solutions to ensure they are working as they should. After the audit, you'll find out whether your company's systems are meeting expectations.

Brand says that as long as you have monitoring systems in place prior to the audit, the "IT and data center manager doesn't have to do much." But he also stresses that there should be cooperation between the management or audit committee within the company, the IT department, and the auditor throughout the process to ensure that the company understands what the auditor found and what needs to be done.

And if after the audit and subsequent fixes a certain technology is still coming up high-risk, Brand says that companies shouldn't hesitate to perform another audit until the problem is solved.

Build An Audit Schedule For The Future

Always keep in mind that audits are tools for your company to improve performance and make sure your technology is working efficiently. For that reason, you should come up with a schedule of when to complete audits and constantly update your risk-based list of infrastructure. According to Brand, there's a possibility that systems you perceived as low risk at the beginning could "become more prevalent on the risk ladder" as time goes on, so it's important to stay up-to-date and regularly monitor the performance of your data center technology. ▣

Action Plan

■ Before the audit process begins, you should have a system in place to monitor your infrastructure and make sure you can track its performance.

■ Conduct a risk assessment of your data center and create a list of infrastructure and systems ranked from highest risk to lowest risk. This will help you decide which parts of your data center to audit.

■ Sit down with your IT department, including management, and the auditor in order to formulate an audit plan. Decide which systems to audit, when to audit them, and what your expectations are based on your already gathered performance data.

■ Run an audit of the highest-risk systems to ensure they are working correctly.

■ After the audit, go over the report and assess potential areas of weakness. Then, put a plan in place to optimize your infrastructure in order to get the performance you expect.

■ You may want to run another audit at a later date to ensure that the changes you make to your infrastructure are having the desired effect.

Get Started

According to Dave Brand, managing director at Protiviti (www.protiviti.com), the two most important things you can do to get started are to have a solid system in place to monitor controls and to know the highest risk infrastructure in your data center. "Understand the risks associated with what it is you own and understand the controls you have in place," Brand says. "Then, ask the auditor if all of the great things you're doing are working like they're supposed to."

Top Tips

✔ Ed McMurray, security and compliance consultant at CoNetrix (www.conetrix.com), says that even if your company isn't in the most common industries for audits, such as regulative or banking, it's still important to consider auditing your IT systems. "You can find a good audit firm that can work with SMBs at a reasonable price that will come in and do a wide range of IT audits to give you a better perspective," McMurray says.

✔ Don't forget to audit business continuity controls, including disaster recovery, because if all else fails, those are the systems that will save you from data loss and extensive downtime.

✔ There are a variety of audits available and many are customizable for individual companies. Conduct research and find the audits that will work best for your specific environment.

Key Points

- Know the inherent risks of your infrastructure and have a way to monitor it to make sure performance is living up to expectations.

- Understand the auditing process and what the role of the IT department is within that process. Work in tandem with the auditor and don't be afraid to ask questions about how to improve throughout.

- Consider either a rotation- or risk-based approach to auditing, so you can make sure your systems are always running at the highest level and new issues don't crop up.

Tips For Buying
Used & Refurbished Equipment

▊ Partner With A Data Destruction Service

Qualified vendor and IT asset disposal vendors will assist your company and take over the responsibility for certification and compliance. "The safeguarding of company or customer data cannot be overemphasized. Serious fines exist for companies if data shows up outside the organization. A campaign to offset damage caused by a data security incident can be catastrophic to companies, as well as the organization's reputation," says Morris Scott, president of DMD Systems Recovery (877/777-0651; www.dmd systems.com). Just a few of the current data compliance standards include the DoD (Department of Defense), NSA (National Security Agency), and NIST (National Institute of Standards and Technology), among others. Most data destruction services also provide you with nondisclosure, confidentiality agreements so you can ensure that your data will be securely dealt with.

Another benefit of a data destruction service is that it can provide you with a variety of options for handling your various types of storage media. For example, let's say that you want to shred a bunch of old tape drives, CDs, and mobile phones, but you want to merely wipe the data off old hard drives so that they can be reused in other parts of your data center or donated to worthy causes. Most data destruction services offer you a combination of degaussing and shredding services in both onsite and offsite variations.

▊ Look For Volume Savings

"When moving equipment out of your environment, volume is good," says Jenny Schuchert, content and development director for IAITAM (International Association of Information Technology Asset Managers). "While a high FMV (fair market value) is one factor to help lower costs when resale is an option, volume of equipment is a good idea when destruction or resale is possible. The price of gold and some other extracted components are allowing vendors to offer reasonably priced destruction and recycling, but the situation is changing as recycling itself increases in cost."

▊ What To Look For In A Dealer

In the retail world, a popular advertising tag line is "Why buy new when slightly used will do?" That philosophy also holds true in data centers and other enterprise-level environments, where companies are increasingly purchasing quality used or refurbished equipment in an effort to save money. But while buying refurbished equipment can result in significant cost savings, there are factors to be aware of before you go shopping for used gear, and chief among them is the vendor from whom you will be buying your equipment.

Do your homework. Make sure the company providing the used equipment has the means and the expertise to give you equipment that's either good as new or as close to it as possible.

Get references. As you research who's behind the equipment you're buying and how they're backing it up, obtain customer references and follow up with each.

Follow licensing requirements. Fortunately, the refurbishment business has progressed to a state where there isn't a lot of equipment that can't be found used and at an OEM level of quality—or sometimes better. But some OEMs make it impossible, by virtue of their software licensing policies, to get a good deal on refurbished equipment. A lot of resellers will try to sneak past these licensing policies, which could come back to bite you in the end, so it's important to find a reputable seller who stays to the right side of these requirements.

▊ Understand Where Used Makes Sense

Different types of hardware evolve at radically different rates. Servers and PCs move toward obsolescence far more rapidly than foundational network components. An analysis of where you need speed and power, and where you don't, will guide your allocation of new and used equipment.

USE PROCESSOR.COM
TO FIND USED & REFURBISHED EQUIPMENT

Once you've made the decision to purchase used or refurbished equipment, finding the equipment you need is easy with *Processor*'s online Data Center Products For Sale Database.

From *Processor*'s home page (www.processor.com), you can search for a specific part number, make, model, or description. Enter the information in the appropriate box and click Search. You'll see a list of available equipment. If you don't see the particular piece you're looking for, scroll to the bottom of the search results page to conduct a more detailed search. There, you can search by part number, model, price, location, and more.

Don't know the specific part number or model? Use the drill-down search on the *Processor* home page to view results from specific manufacturers. Simply click the manufacturer name, and you'll see a list of all equipment listings from that manufacturer.
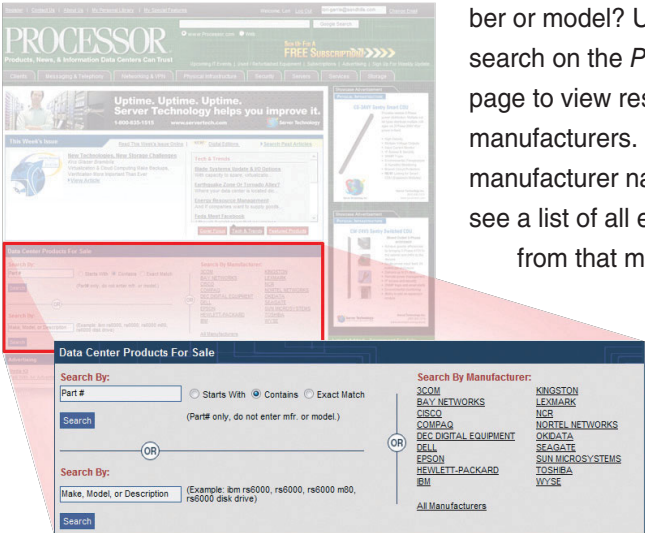
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Follow the on-screen directions from there!

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At These IT Training & Association Meetings
Across The United States

JULY

AITP Pittsburgh
July 9, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

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AITP Washington, D.C.
July 12
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

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SpecTECHular 2012
July 17
New Horizons Fort Worth
4100 International Plaza
Suite 200
Fort Worth, Texas
register.nhcomputerlearning.com
/Events/

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SpecTECHular 2012
July 24
New Horizons San Antonio
2727 NW Loop 410
Suite 103
San Antonio, Texas
register.nhcomputerlearning.com
/Events/

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**SQL Coding
Best Practices
and Shortcuts**
July 24, 9 to 11 a.m.
New Horizons South Dakota
4610 Technopolis Drive
Suite 100
Sioux Falls, S.D.
register.nhcomputerlearning.com
/Events/

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ISSA Baltimore
July 25
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
www.issa-balt.org

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SPTechCon
July 25
Boston, Mass.
www.sptechcon.com

AUGUST

AITP Washington, D.C.
Aug. 9
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

SpecTECHular 2012
Aug. 9
New Horizons Kansas City
9611 E. Metcalf Ave.
Overland Park, Kansas
register.nhcomputerlearning.com
/Events/

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**AITP
Pittsburgh**
Aug. 13, 5 to 8 p.m.
Silvioni's Restaurant
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Pittsburgh, Pa.
www.aitp-pgh.org

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SpecTECHular 2012
Aug. 21
New Horizons Oklahoma City
3010 NW 149th St.
Oklahoma City, Okla.
register.nhcomputerlearning.com
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**ISSA
Baltimore**
Aug. 22
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
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SpecTECHular 2012
Aug. 28
New Horizons South Dakota
4610 Technopolis Drive
Suite 100
Sioux Falls, S.D.
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/Events/

SEPTEMBER

**AITP
Pittsburgh**
Sept. 10, 5 to 8 p.m.
Silvioni's Restaurant
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Pittsburgh, Pa.
www.aitp-pgh.org

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**AITP
Washington, D.C.**
Sept. 13
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

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**ISSA Baltimore Information
Security Summit**
Sept. 13, 7:30 a.m. to 4:30 p.m.
NIST
100 Bureau Drive
Gaithersburg, Md.
infosec-summit.issa-balt.org/index.html

**ISSA
Baltimore**
Sept. 19
Concurrent Technologies Corp.
8530 Corridor Road, Savage, Md.
www.issa-balt.org

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**AITP
Cornhusker**
Sept. 20, 5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group
.asp?id=75767

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AITP Akron
Sept. 25
Akron, Ohio
www.akron-aitp.org

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Data Center World
Sept. 30-Oct. 3
Gaylord Opryland
Nashville, Tenn.
www.afcom.com

OCTOBER

Interop New York
Oct. 1-5
Javits Convention Center
New York, N.Y.
www.interop.com

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**AITP
Pittsburgh**
Oct. 8, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

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**AITP National
Annual Meeting of the Members
and Region 5 Fall
Technology Conference**
Oct. 11
Radisson Hotel and
Convention Center
2040 Airport Drive
Green Bay, Wis.
www.aitp.org/region5

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**AITP
Washington, D.C.**
Oct. 11
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

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**AITP
Cornhusker**
Oct. 18, 5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group
.asp?id=75767

ISSA Baltimore
Oct. 24
Concurrent Technologies Corp.
8530 Corridor Road, Savage, Md.
www.issa-balt.org

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WPDevCon
Oct. 24
San Francisco, Calif.
www.wpdevcon.net

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AITP Akron
Oct. 30
Akron, Ohio
www.akron-aitp.org

NOVEMBER

AITP Washington, D.C.
Nov. 8
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

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AITP Pittsburgh
Nov. 12, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

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AITP Cornhusker
Nov. 15, 5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group
.asp?id=75767

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**ISSA
Baltimore**
Nov. 28
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
www.issa-balt.org

DECEMBER

Android DevCon IV
Dec. 7
San Francisco, Calif.
www.andevcon.com

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AITP Pittsburgh
Dec. 10, 5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

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AITP Washington, D.C.
Dec. 13
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

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Processor Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry.

Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

To list your company and products, call (800) 247-4880.

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SECURITY

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